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PROSPERITY

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The Report of the Future Environmental Directions for Alberta Task Force
March 1995



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Your response to *Ensuring Prosperity — Implementing Sustainable Development* is welcome. Please comment directly to your Member of the Legislative Assembly, or the Honourable Ty Lund, Minister of Alberta Environmental Protection.

ENSURING PROSPERITY

Implementing Sustainable Development

IN THE NEXT CENTURY, THE NINETIES MIGHT WELL BE LOOKED UPON AS THE "DECADE OF THE ENVIRONMENT". WHAT DOES THAT MEAN? AT ONE END OF THE SPECTRUM, BEING "GREEN" IS SUSPECTED OF BEING NOTHING MORE THAN AN ADVERTISING GIMMICK... AT THE OTHER, IT MEANS MILITANT ACTION TO PREVENT RUINATION OF THE PLANET.

FORTUNATELY, THE POPULAR INTENT FALLS BETWEEN THESE EXTREMES. IT IS MORE PRACTICAL AND SINCERE THAN SUPERFICIAL, LESS RADICAL AND SENSATIONAL THAN MILITANT.

ALBERTA AT THE CROSSROADS

FOR ALBERTANS, THE DECADE OF THE ENVIRONMENT MEANS CELEBRATING OUR NATURAL WORLD, REVELLING IN THE ABUNDANCE OF OUR NATURAL RESOURCES. WE WANT TO ENSURE THAT THE WONDERS OF FRESH AIR, BLUE SKIES, CLEAN WATER, RICH SOIL, AND HEALTHY FLORA AND FAUNA WILL BE OUR LEGACY TO FUTURE GENERATIONS.

ANCIENT CIVILIZATIONS WORSHIPPED THE FORCES OF NATURE, RESPECTED THAT POWER OVER MANKIND'S EXISTENCE. IN MODERN TIMES, THE CELEBRATION HAS OFTEN BEEN LOST ON MANY WHO TOOK FOR GRANTED THIS FORCE — THIS POWER — WITHOUT DUE REGARD FOR ITS UNDERLYING FRAGILITY.

TODAY, THE WONDERS OF NATURE REQUIRE MORE THAN CELEBRATION. THEY DEMAND ATTENTION. THEY ARE THREATENED, STRESSED, OVERLOOKED AND DISAPPEARING IN OUR RUSH TO MODERNIZE...TO INCREASE PRODUCTION...TO ACCOMMODATE OUR IMMEDIATE NEEDS.

WE ARE MIDWAY THROUGH A DECADE OF CHANGE — A WINDOW OF OPPORTUNITY TO RECONCILE OUR ECONOMIC NEEDS WITH A CONSERVATION ETHIC. WE MUST REINSTATE THIS ETHIC IN OUR EVERYDAY LIVES...IN OUR INDIVIDUAL, GOVERNMENT AND CORPORATE POLICIES AND PRACTICES...IN OUR INTERNATIONAL AFFAIRS AND NEGOTIATIONS.

WE MUST ACCEPT AND ACKNOWLEDGE THAT HUMANS ARE ONE *WITH* THEIR ENVIRONMENT, NOT *APART* FROM IT. WE MUST BRING OUR ECONOMIC AMBITIONS INTO HARMONY WITH OUR ENVIRONMENTAL CAPACITIES. AT THE SAME TIME, ECONOMIC REALITIES MUST BE A FACTOR IN OUR ENVIRONMENTAL INITIATIVES. EACH PERSON, EACH ORGANIZATION — WHETHER PRIVATE SECTOR OR PUBLIC SERVICE — MUST FOCUS THEIR EXPERTISE, STRENGTH AND POWER ON ATTAINING THIS DELICATE BALANCE.

THE 1990S WILL ALSO BE LOOKED UPON IN THE NEXT CENTURY AS THE DECADE THAT SAW "SUSTAINABLE DEVELOPMENT" BECOME MORE THAN BUZZWORDS... WHEN THE VISIONS OF SOME BECAME THE CAUSE OF MANY. IT WILL BE THE DECADE OF CONSCIENCE...ONE OF CHANGING ATTITUDES AND RESPONSIBLE BEHAVIOUR... ONE OF ACCOUNTABILITY AND DETERMINATION... ONE OF SETTING PRIORITIES AND CHOOSING FUTURE DIRECTIONS.

FOR ALBERTA AND ALBERTANS, IT WILL BE THE DECADE OF *SEIZING OPPORTUNITY* AND *ENSURING PROSPERITY*... OF MOVING INTO THE NEXT MILLENNIUM WITH PRIDE AND CONFIDENCE.

ENSURING PROSPERITY

Implementing Sustainable Development

The Report of the Future Environmental Directions for Alberta Task Force



This report is dedicated to the thousands of Alberta volunteers from all segments of society who, willingly and enthusiastically, have committed their thoughts and energies to protecting our environment and ensuring lasting prosperity.



March 21, 1995

Honourable Ty Lund
Minister of Alberta Environmental Protection
Edmonton, Alberta

Dear Minister:

On behalf of the members of the Task Force on Future Environmental Directions for Alberta, it is my privilege to provide you with *Ensuring Prosperity — Implementing Sustainable Development*. This report is the culmination of almost two years of deliberation and consultation.

The Task Force looked to the future to identify what must be done now to make sustainable development a reality in Alberta. Based on known factors and emerging trends, we have identified five priorities for effective action.

We foresee rising international demand for Alberta resources over the next two decades. We also know that Alberta's prosperity is inextricably linked to maintaining uninterrupted markets and securing new customers. At the same time, Alberta will face increasing global pressures to perform in an environmentally responsible manner, and the limits to the quality and quantity of our resources must be respected.

We believe that accepting sustainable development as a fundamental value may well serve as the essential cornerstone for building consensus between those in favour of development and those opposed to it... for protecting our air, water and land... for enhancing our national and international reputation.

We took a common sense approach in recommending actions that are fiscally responsible. We do not ask for a more complicated regulatory regime. We advocate empowerment and accountability, and encourage all sectors to be transparent in their dealings with each other.

Above all, we urge the Government of Alberta, industry, and all Albertans to make our five priorities their priorities. The time to fully implement the Alberta Vision of Sustainable Development is now.

Respectfully submitted,

David Anderson, Chair
Future Environmental Directions for Alberta Task Force



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ENSURING PROSPERITY

Implementing Sustainable Development

The Report of the Future Environmental Directions for Alberta Task Force

Alberta at the Crossroads

Dedication

Letter of Transmittal

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SECTION 1

Environment or Economy? Not a Question of Choice

"There is no hierarchy... it is environment and economy rather than environment or economy."

Delphi survey participant

For most of the 20th century, progress was measured in terms of economic development initiatives. The impact of that development on the environment was not a major consideration among the decision-makers. Many maintained a rather cavalier attitude: effluent was a downstream problem; depleted soil could be fertilized; new forests could be found; and wildlife would find another habitat. Protecting and reclaiming the environment were too often considered extra costs — expensive, "feel good" exercises which affected the margin for profit.

We don't think that way any longer. We are now beginning to understand the cost of short-term gains made at the expense of the environment; they must be paid for later. There is ample evidence to warn of the long-term pain. Soil contamination is a case in point. It has been estimated that 40-cent per litre gas leaked or dumped into the soil costs \$15 per litre to clean up. On a much larger scale, disregard for the environment and society during decades of uncontrolled industrialization has devastated economies in parts of Eastern Europe. Governments there have been saddled with the costs of ruined farmland, poisoned rivers and appalling health conditions. Closer to home, overfishing was a major factor in the collapse of the cod fishing industry in Atlantic Canada, severely straining the already fragile economy that depended on it. What was once a \$100-million industry has been reduced to a \$100-thousand pastime. The interdependence of the environment and the economy is clear.

STRENGTHENING OUR FOUNDATIONS OF PROSPERITY

For thousands of years, Aboriginal people lived off the bounties of nature throughout North America. In the region that would become known as Alberta, the domain of the Blackfoot was the southern plains and prairie, while the Cree and Woodland tribes inhabited the central parkland and northern boreal forest regions.

Early explorers opened the territory to the fur trade of the 18th century which drew adventurous Europeans west. They were followed in the 19th century by agricultural pioneers — ranchers to the southern regions, farmers to the north.

But the greatest influx of newcomers came after the completion of the Canadian Pacific Railway in 1885 to serve the south, and the Grand Trunk Pacific and Canadian Northern Railways in early 1900s to serve central and northern areas. This brought wave after wave of immigrants who had taken advantage of land grants created to encourage western settlement. Living conditions were often primitive... work was hard... winters were harsh... and the vastness of the land lent itself to isolation. But the people persevered to create a new life in a new country. The land and resources were rich beyond their dreams. They prospered and built their homes, farms, businesses and communities.

The pattern of exploiting the land and depending on external markets was entrenched by the turn of the century. The railways provided the routes to

"There is a symbiotic relationship between environment and economy — neither can exist without the other."

Delphi Survey Participant



"People will act in a sustainable manner if the government acts on what the citizens know is important and involves citizens in the process."
Delphi Survey Participant

eastern markets for Alberta grain and cattle, returning with manufactured commodities. In addition, accessibility to the breath-taking beauty of the Rockies sparked a lucrative tourism industry that soon extended to other parts of the province.

Agriculture remained the primary industry for more than half a century. The discovery of gas in Medicine Hat in 1885 and oil in the Turner Valley in 1914, followed by a flurry of energy-related activity in the late 1930s, were greatly overshadowed by the discovery of the Leduc field in 1947. Subsequent and continuing hydrocarbon finds clearly established the province as the energy centre of Canada.

Alberta's development has always been shaped and enriched by the spirit of its citizens, and their recognition that their prosperity would be drawn from the abundance of its natural resources. The successes of this century have come from the energy and mining industries... from a diversified agricultural sector... from a rapidly growing forest products industry. Our expanding technology industry is closely related to these resource-based endeavours. The province's natural attributes are a source of pride to Albertans who welcome visitors from around the world to share this frontier environment.

We enjoy an enviable quality of life. Albertans place a high value on the clean air, clean water and the great outdoors that make this province an attractive and healthy place to live. These qualities support all sectors of the economy, and give Alberta a competitive advantage by attracting and helping maintain a stable and skilled workforce.

Today's world is fast-paced and competitive, technologically advanced and changing rapidly. As we look to the next 20 years and beyond, we cannot assume that we will always have the environmental and natural resource advantages that have strengthened the foundations of our economy. To ensure our prosperity, we must direct our efforts toward achieving both our economic goals and environmental goals — they are inseparable.

WISE USE OF OUR ENVIRONMENTAL ASSETS

Albertans should think of our environmental resources as our capital assets. For the most part, we have managed to live off the interest and dividends. However, unless non-renewable resources are used to the best effect, and renewable resources are used at a sustainable level, we will be forced to tap further into our capital. In so doing, we will have created an environmental deficit for which future generations will have to pay. We will have diminished their likelihood of enjoying the level of prosperity we have achieved. Fortunately, more and more Albertans — like wise investors — are recognizing and appreciating the concept of environmental stewardship as a means of ensuring long-term economic well-being.

Alberta's leading economic sectors

In 1992, oil and gas industry revenues totalled \$14.8 billion, more than the combined revenues of the other three leading industries: agriculture, tourism and forestry. Despite substantial reserves of fossil fuels, Alberta's energy supplies are not inexhaustible. The industry continues to seek ways to maximize extraction techniques amid volatile pricing structures and other uncertainties. Like other resource industries, the oil and gas/mining sector must respond to growing environmental scrutiny, at home and abroad.

"Fertilizers and pesticides contaminate our air. They seep into ground water that is often a source of well water for people, crops and livestock. If nothing is done within the next 20 years, our agriculture will suffer so badly from soil erosion that we won't be producing food."

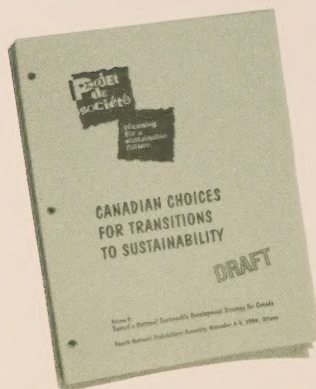
Delphi Survey Participant

"Alberta's wild lands and rivers will be important tourist resources. Ecotourism will flourish as visitors are attracted to Alberta's pristine, sustained ecosystems. Visitors will seek wilderness and wildlife viewing experiences not available elsewhere in the world."

Delphi summary
Praxis Inc.

"No forest, no industry."

Delphi Survey Participant



Approximately one-third — 20.8 million hectares — of the provincial land base is dedicated to agriculture. Alberta boasts 57,000 farms and ranches which generated \$4.8 billion in revenues from crop and livestock sales in 1992. However, farmlands are increasingly vulnerable to the effects of wind and water erosion, chemical soil treatments, reduced rainfall and the potential of global warming. In the past 100 years, cultivated land has lost almost half of its original organic content, which took 10,000 years to develop. Conserving the quality and quantity of our farmland through environmentally sound agricultural practices is vital to maintaining food production.

Tourism, including business travel, is one of the world's most competitive and fastest growing industries. It continues to expand as an economic generator in Alberta, with \$3.0 billion in revenues in 1993. Preservation of our unspoiled natural habitat is becoming increasingly important as such areas become more scarce in the global context. This presents a tremendous opportunity for Alberta to capitalize on the healthfulness of its environment as an attraction in its own right.

The growth of the forestry industry in Alberta was prompted by the desire for economic diversification to reduce our reliance on the energy and agricultural sectors. Revenues from forestry shipments totalled \$2.1 billion in 1992.

Environmental pressures, locally and internationally, have been intense against further development. Despite legislated forest management regulations, including compulsory reforestation and more stringent environmental controls on production techniques, perceptions about over-harvesting continue to abound. It is essential that Alberta ensures a sustained supply of fibre and conserves habitat.

Together these four sectors — oil and gas, agriculture, tourism and forestry — are major economic forces in Alberta, generating almost \$25 billion in revenues and creating more than 260,000 jobs. However, they have also put enormous pressure on our vulnerable environment and resources, and changed our landscape.

Safeguarding and carefully managing our resources by implementing the principles and practices of sustainable development must be a major component of our economic strategies. The *Projet de société* is a partnership of more than 80 stakeholders, representing governments, industry and environmental organizations, who are working to develop a national sustainable development strategy for Canada. Its draft document, *Canadian Choices for Transitions to Sustainability*, aptly addresses concerns regarding perceived limitations to economic growth:

"...sustainable development must not be equated with economic decline or competitive disadvantage, and even less with halting all forms of technological innovation. The challenge is not whether to grow, but how to develop. Sustainable development must be seen as a positive enterprise applying our research and development capabilities and entrepreneurial skills to manage change."

THINKING GLOBALLY

We must recognize the fact that Alberta is not immune to outside forces and pressures on the environment. The fundamental truth is that all things are connected. Interaction among various factors can create catastrophic reactions before we are aware of the implications of seemingly unrelated activity. Ultimately, our planet is

a single environment. This is well-illustrated in *Seven Tomorrows, Toward a Voluntary History*, published in 1982 when energy prices were escalating:

"An example of such interaction and the complexity it introduces... is the relationship between high oil prices and flooding in Bangladesh, a link that may sound unlikely. Because the U.S. imports a great deal of oil and may be rich enough to pay for it, it has bid up the price of oil paid by poorer countries as well. Farmers in Nepal, who used to use fertilizers made from oil, must now convert to cow dung, formerly used as fuel for cooking. Firewood replaces the cow dung as fuel, forests are stripped for wood, and the topsoil erodes. The rain waters run off rather than being absorbed, rivers swell downstream, and Bangladesh is flooded in epic proportions, sweeping thousands to their death and leaving tens of thousands homeless and diseased. That such suffering stems from wasteful driving in America seems at first a difficult connection to accept, but the causal connections make the link real nevertheless."

"As much as we would like to think we can control the environment, the reality is humanity is totally dependent on the biosphere's natural ecosystems. We can't get away from our interdependence, both within the human race and within the whole system. All ecosystems are circular and we must change our linear hierarchical way of thinking to fit within this circle."

Delphi Survey Participant

Clearly, this illustrates that we can become victims of collective fate. In one way or another, we feel the impacts of resource consumption, rising hunger, erratic weather, and global conflict. Furthermore, we live in a densely populated world with decreasing amounts of arable land. We are highly dependent on the health and condition of our soils and ecosystems, especially with respect to food production. If world agricultural production were to collapse, even for a year, every nation would suffer the shock. There is not sufficient resilience within the entire food production system to cushion the potential impact and feed billions upon billions of people.

The off-chance that highly improbable events and activities might connect to become reality is receiving greater attention among world powers. The threat of such circumstances forces all of us to consider their possibility, to seek — and discover — alternatives more closely tied to wise use of our resources and environment.

Albertans must also consider the impact of a widening divergence of values and lifestyles, and accept that there are differences in attitudes toward the environment and its resources based on historical and ethnic roots. For example, Aboriginal people traditionally take a holistic approach to the elements of the environment and treat the forces of nature with respect, guarding its gifts for future generations. As well, values may have been shaped differently for people who experienced the hardship of the Great Depression of the '30s, compared to others whose values originate in post-war affluence that, for a period, created the "disposable" society and provided options and opportunities unknown in less prosperous societies.

The value we place on our quality of life will be a major determinant of our capacity to nurture and sustain Alberta's environment. Our responsibility as the caretakers of an environmental legacy must be reflected through our individual attitudes and behaviour.

FACING THE TRADE CHALLENGE

Alberta is a trading province. Total exports to other parts of Canada and to foreign markets generated \$29.99 billion, about 38 per cent of our \$78.92-billion Gross Domestic Product in 1993. Based on revenue, oil and gas and other minerals



Steven Biggs and his sister Christine, Honorary Patron of the Edmonton 1994 Forestry Capital Society. Her "growing with our forests" T-shirt was also the design for the Edmonton Telephones white pages cover.

accounted for 54.6 per cent of exports in 1993. International export of goods and services accounted for a quarter of our Gross Domestic Product, equivalent to \$19.73 billion in 1993. As globalization shrinks the world, we are likely to rely even more on outside markets.

In the past few years, we have seen an explosion of concern about the links between environment and trade. As trade barriers are removed, environmental standards are being manipulated by industry protectionists who use this avenue to create non-tariff barriers and to present countervail arguments against foreign imports. At the same time, environmentalists have seen that trade agreements can be a very effective tool for promoting their views on global environmental reforms. Our continued success in selling our products internationally will depend, in part, on how well we manage our environment.

Moreover, we now have trade provisions in environmental agreements — and environmental provisions in trade agreements. Many trade agreements already advocate environmentally-sound practices and “cradle-to-grave” responsibility for products and packaging. These include provisions that set minimum standards covering production and manufacturing, energy use and refining, product and packaging content, distribution and waste disposal.

Customer preference for dealing with suppliers who practice environmental stewardship has become an important factor, as is evidenced by the requirements for recycled feedstock in paper manufacturing. Just as Hydro Quebec and British Columbia forest products have faced export challenges as a result of environmental practices, so too could Alberta’s natural gas exports face the threat of declining sales due to end-user pressures on United States utility corporations. We are moving into an era where the environmental standards that matter are set by the customers — not the producers.

International environmental agreements also create the possibility for federal involvement in areas of provincial jurisdiction. Alberta will have to protect its own environment at or above international standards to avoid intervention by other governments or outside parties.

The potential for international threats to our future prosperity clearly underlines the compelling reality of the linkage between the environment and the economy. Our significant dependence on resource-based trade — Alberta’s economic lifeline — makes us vulnerable to outside forces over which we have little or no control.

In many areas, Alberta now has among the most stringent environmental standards in the world, but we must keep pace with other industrialized nations. Fair regulations, consistently enforced, will ensure that we are both proactive and effectively reactive to outside pressures. Particular attention will have to be directed — by government and industry — toward creating awareness of these safe-guards. In addition to communicating with long-standing and potential customers, more effective communication is required through the international media and various influential associations, such as the International Standards Organization (ISO) and the Organization for Economic Cooperation and Development (OECD).

“Canadian natural gas exports to the U.S. undermine efforts to establish alternative energy production from renewable sources such as wind or solar power, an American environmental organization says.

“In an unusual move, the Seattle-based group made a presentation... to the National Energy Board during a hearing in Calgary into natural gas exports to the United States.”

Calgary Herald, September 1994

“Canada’s largest oil lobby is gearing up a North American public information campaign to combat environmentalists’ tales of how land and water may be hurt by the hunt for natural gas.

“Directors of the Canadian Association of Petroleum Producers will... discuss strategies on how to prevent the green movement from hurting billions of dollars worth of gas sales to the U.S.”

Calgary Herald, October 1994

“Global pressures will ultimately shape what type of sustainable environment we will have. We can either engineer one now that anticipates stricter guidelines, or we can wait for the pressure to be brought to bear.”

Delphi Survey Participant

ENHANCING THE ALBERTA ADVANTAGE

In fact, Alberta's environmental standards have contributed to making many companies more efficient, improving their competitiveness, and creating new domestic and international markets. In the resource sectors, particularly when driven by localized circumstances, industry practices often exceed government-set minimum standards.

Our high standards have helped to create exciting, new opportunities. The environment industry includes companies that provide research, design, construction, servicing and implementation required for environmental conservation, protection, enhancement products, and services to municipalities, manufacturers and resource industries.

The Alberta environment industry per se currently employs 8,000 people and generates between \$600 and \$700 million in revenues annually. The industry is predicting annual growth of between five and 15 per cent during the next five years. In reality, many more Albertans are actively involved in the environmental field. For example, resource industries employ wildlife biologists, engineers, designers, technicians, reclamation personnel and resource managers whose primary responsibility is to ensure that environmental objectives are met. However, they would not necessarily be counted among those 8,000 nor, for instance, would people employed in the production and manufacturing of products from recycled materials.

Alberta is a recognized leader in fossil fuel technologies, hazardous waste management, recycling, forest fire technology and prevention, environmental effects monitoring, and reclamation. Much of our research and development in these fields has resulted from cooperative ventures between government agencies, such as the Alberta Environmental Centre and the Alberta Research Council, and private industry.

According to the *Global Business Plan*, published by Alberta Economic Development and Tourism, the environment industry is changing its focus from clean-up to the development of technologies and products to prevent environmental problems. Competitive strengths include locally-developed processes and products which meet or exceed internationally recognized standards of quality and reliability, and Alberta's expertise in environmental policies and regulatory processes. Our largest export markets are currently the United States and Japan. Marketing strategies which target Mexico as a result of the North American Free Trade Agreement, Europe, and other Asian and South American countries have been developed by the department.

Seizing Opportunity, released by the government in April 1993, has set the economic agenda for Alberta, and reiterates the importance of economic activity within the context of sustainable development. The document is based on the principles of:

- building on our strengths;
- working toward a common goal; and
- setting strategic targets for the future.

Ensuring Prosperity — Implementing Sustainable Development supports these principles and advocates their application to the concept of sustainable development.

"Focusing on niche market areas or building on current areas of strength should be the focus of development... [including] hazardous waste management and handling equipment, hardware and software development, and technical expertise."
Delphi summary
Praxis Inc.

"The pressures driving business to respond to environmental concerns – international agreements, regulatory mechanisms, multilateral trading agreements, market forces, public accountability and pressure from shareholders – will continue to increase over the decade."

John D. Wiebe
President & CEO,
the GLOBE Foundation of Canada



SECTION 2

Building on the Visions

Our *Common Future*, the report of the United Nations World Commission on Environment and Development released in 1987, brought the concept of “sustainable development” to the forefront. Its definition as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” dictates that growth can only be sustainable if it is environmentally sound.

The establishment of the Commission and subsequent international attention to its final report highlighted the rate of global environmental degradation. Importantly, it brought industry into the environmental fold as a partner, not a perpetrator. More than any other single factor, it placed the *environment* on the agenda with economic development and challenged industry to respond proactively.

Building on the United Nations World Commission, Canada formed the National Task Force on the Environment and the Economy in 1986, and the provinces established individual round tables. The Alberta Round Table on Environment and Economy, composed of 24 appointed members representing a broad spectrum of society, began its consultation process in the Spring of 1990 to formulate our provincial vision of sustainable development.

The Round Table determined that sustainable development must be Alberta's future, and emphasized that the environment and economy are inextricably linked. Significantly, it articulated a powerful vision of sustainable development:

Alberta's Vision of Sustainable Development

Alberta, a member of the global community, is a leader in sustainable development, ensuring a healthy environment, a healthy economy, and a high quality of life in the present and the future. Our vision encompasses all of the following elements*:

- The quality of air, water, and land is assured.
- Alberta's biological diversity is preserved.
- We live within Alberta's natural carrying capacity.
- The economy is healthy.
- Market forces and regulatory systems work for sustainable development.
- Urban and rural communities offer a healthy environment for living.
- Albertans are educated and informed about the economy and the environment.
- Albertans are responsible global citizens.
- Albertans are stewards of the environment and the economy.

Alberta, a member of the global community, is a leader in sustainable development, ensuring a healthy environment, a healthy economy, and a high quality of life in the present and the future.

This vision was endorsed unanimously by the Alberta Legislature in June 1992, and subsequently by more than 100 municipalities.

The final report of the Round Table, *Steps to Realizing Sustainable Development*, was released in May 1993. It presented 13 recommendations, including the use of 59 sustainable development indicators to measure and report progress toward the vision. The Government of Alberta has taken various steps to implement a number of the recommendations, and established the Standing Policy Committee on Natural Resources and Sustainable Development. As well, several departments have incorporated aspects of sustainable development in their mission and mandate statements, policies or procedures.

*Detailed elements are provided in Section 3, Chapter 1.

Alberta Environmental Protection and Enhancement Act consolidates the following *Acts* and attendant regulations:

- *Agricultural Chemicals Act*;
- *Beverage Container Act*;
- *Clean Air Act*;
- *Clean Water Act*;
- *Ground Water Development Act*;
- *Hazardous Chemicals Act*;
- *Land Conservation and Reclamation Act*; and
- *Litter Act*.

The Sustainable Development Co-ordinating Council, under Section 7(1) of the *Act*, is composed of a Deputy Minister from each of the following departments of government:

- Agriculture, Food and Rural Development;
- Economic Development and Tourism;
- Energy;
- Environmental Protection (includes Forestry, Lands and Wildlife, as well as Parks);
- Federal and Intergovernmental Affairs;
- Health;
- Municipal Affairs;
- Public Works, Supply and Services; and
- Transportation and Utilities;

plus:

- the Chairman of the Alberta Energy and Utilities Board;
- the Chairman of the Natural Resources Conservation Board;
- the Chief Executive Officer of the Environment Council of Alberta;
- the President of the Alberta Research Council; and
- representatives of other government agencies and departments as designated by the Minister of Environmental Protection.

Seizing Opportunity, Alberta's economic development strategy, recognizes that sustainable development is one of the cornerstones of economic development, now and in the future. This economic strategy endorses the principle that Alberta should be a leader in sustainable development:

Sustainable development — managing progress on the economy and the environment at the same time — must form the context for provincial economic strategies. We must link environmental and economic agendas if we are to see future benefits from either.

Both the vision and strategy outline a common goal: a future where sustainable development is a reality and prosperity is assured.

The Alberta government's commitment to the environment is not new. After it created the Environment Council of Alberta in 1970, it then established the Environment department in 1971. Both were firsts for Canada. In fact, the Environment Council is Canada's longest serving environmental organization established by any level of government. In recent years, the Council's focus shifted to sustainable development.

Aspects of environmental protection and environmental health are embodied in a number of statutes and regulations, involving various departments, but the cornerstone is the new *Alberta Environmental Protection and Enhancement Act*. Proclaimed in June 1993 following two years of public consultation and input, the *Act* consolidated eight other acts into one comprehensive piece of legislation. The purpose section of the *Act* recognizes the following:

(a) the protection of the environment is essential to the integrity of ecosystems and human health and to the well-being of society;

(b) the need for Alberta's economic growth and prosperity in an environmentally responsible manner and the need to integrate environmental protection and economic decisions in the earliest stages of planning; and

(c) the principle of sustainable development, which ensures that the use of resources and the environment today does not impair prospects for their use by future generations.

The Alberta Environmental Protection and Enhancement Act also makes provision for the public involvement in decision-making throughout the *Act*, and through participation in the Environmental Impact Assessment process and the review of projects referred to the Natural Resources Conservation Board or the Alberta Energy and Utilities Board. Interdepartmental coordination on matters related to sustainable development and the protection of the environment is undertaken through the Sustainable Development Co-ordinating Council, comprised of senior officials, and chaired by the deputy minister of Environmental Protection.

Political review of government and private sector initiatives which have the potential for environmental impact is accommodated through the Standing Policy Committee on Natural Resources and Sustainable Development. The Committee approves programs and policies and hears submissions relating to the environment, natural and energy resources, sustainable development, public lands and labour-management issues. It considers policy issues and communications strategies concerning sustainable development and the conservation and maximization of energy resources.

The Standing Policy Committee on Natural Resources and Sustainable Development is composed of the Ministers of:

- Economic Development and Tourism;
- Energy;
- Environmental Protection;
- Labour;
- Public Works, Supply and Services;
- Science and Research;
- Transportation and Utilities; and
- Treasury;

and other government Members of the Legislative Assembly.

Elaborations of commitment to sustainable development are also among Alberta Environmental Protection's principles which guide decision-making:

- *Sustainable Development*
Albertans are dedicated to achieving sustainable development that ensures the utilization of resources and the environment today does not impair prospects for their use by future generations.
- *Ecosystem Sustainability*
Albertans' expectations for environmental protection and enforcement are ensured by firmly and fairly enforcing our regulatory framework.

Furthermore, the other principles cover shared responsibility, public involvement, customer service, enforcement, scientific and technical leadership, anticipation, prevention and mitigation, intergovernmental cooperation, environmental enhancement, and preserving and protecting special places.

The public dialogue that surrounded the formulation of the *Alberta Environmental Enhancement and Protection Act* was extensive. Thousands of Albertans expressed their commitment to and concern about the environment and its contribution to an enviable quality of life. Albertans acknowledge and support the need for government leadership... accept that a safe environment is a shared responsibility and that individual action is critical to success.

The visions and principles adopted by the government provide the mechanism and framework to be innovative in our progression toward real sustainable development. The key will be in motivating all sectors to effectively put the principles into practice.

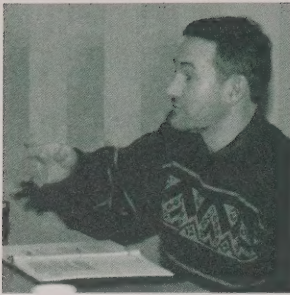
DEVELOPING AN AGENDA FOR ACTION

The strong link between our environment and economy — offering both challenges and opportunities for Alberta — can neither be denied nor ignored. There are many useful steps to ensuring prosperity by protecting the environment. However, human resources, time and money are limited, and likely to become more so in the future. We must choose our directions wisely by setting environmental priorities.

Priorities point the way to the most effective and most powerful actions. They focus resources on the actions that add value to activities already underway and avoid duplication of effort.

The development of priorities is about making choices. At the request of the Minister of Environmental Protection, the Future Environmental Directions for Alberta project was initiated in September 1993 to identify and recommend those choices. The Environment Council of Alberta asked a task force of knowledgeable and concerned men and women to direct the project. Representing diverse interests and backgrounds, these Albertans were chosen for their expertise and personal commitment to sound environmental management, rather than because of the organizations with which they are affiliated. (See Appendix I.)

"There's an urgency to setting priorities. This is not a look at the future, but a glimpse around the corner."
Robert Elliott, Task Force Member



David Anderson

*"If the survey helps get rid of hidden
agendas and 'behind closed doors' deals,
it will do some good."*
Delphi Survey Participant



George Kupfer and Bob Page

*"Helluva long survey for anyone who
is really concerned, experienced or
knowledgeable – and that probably
covers everyone you sent it to. The
issues are also those we care most about
so I dutifully completed it."*
Delphi Survey Participant

The Task Force members were:

Chairman David Anderson, A/Chief Executive Officer
Environment Council of Alberta, Edmonton;

Peter Crerar, Assistant Deputy Minister, Corporate and Policy Development,
Alberta Economic Development and Tourism, Edmonton;

Robert Elliott
retired agricultural research scientist, Beaverlodge;

George Flynn, Director, Environmental Health Services,
Alberta Health, Edmonton;

Ron Hicks, Assistant Deputy Minister, Corporate Management,
Alberta Environmental Protection, Edmonton;

Judy Huntley
environmental researcher and consultant, Maycroft;

Elmer Kure
conservationist and land use consultant, Innisfail;

Donald Laishley, Director of Forest Strategy,
Weldwood of Canada, Vancouver, B.C. (previously of Hinton);

Werner Messerschmidt, Councillor
Municipal District of Woodlands, Whitecourt;

Clarence Olthuis
poultry and grain farmer/community environment coordinator, Neerlandia;

Bob Page, Dean, Faculty of Environmental Design,
University of Calgary, Calgary;

David Stuart, Manager, Environmental Programs,
Petro-Canada, Calgary;

Diane Thompson, Manager, Geo-Information Services,
Intera Information Technologies Corporation, Calgary;

Donna Tingley, Executive Director
Environmental Law Centre, Edmonton; and

Millard Wright, Manager, Safety and Environment
Gulf Canada Resources Limited, Calgary.

Throughout the process, the Task Force was facilitated by Dr. George Kupfer of Fresh Start Limited. As well, the members benefitted from the advice and counsel of Barbara Deters of Status Plus Public Relations Inc., who wrote the final report. Lynn Zwicky, managing editor of Green Thread Publishing in Edmonton also provided on-going advice. The members of the Task Force were assisted by a project team from the Environment Council of Alberta, and other government departments:

Project Director, Bill Calder, Director, Environmental Priorities;

Kathy Acheson, Policy Analyst;

Brian Free, Manager, Futures;

Warren Kindzierski, Head, Chemical Risk Assessment
Environmental Health Services, Alberta Health;

Takashi Ohki, Director, Policy Analysis and Coordination
Alberta Economic Development and Tourism; and

Malcolm Wilson, Director
Alberta Environmental Centre, Vegreville.



Malcolm Wilson and Donna Tingley

The mandate of the Task Force was to recommend long-term environmental priorities to the Government of Alberta and others with an impact on the Alberta environment. The findings were to be compiled in a report that supports the implementation of Alberta's sustainable development vision, taking into account:

- the trends influencing Alberta's future environment and sustainable development;
- the most important environmental issues and opportunities that Alberta is likely to face in the next 20 years; and
- practical, cost-effective actions to address those trends, issues and opportunities, and make progress toward sustainable development.

The goal was to build on the visions that had been articulated and endorsed by the Government of Alberta, and to make recommendations that would provide specific directions to government, industry and the public. Developing an environmental agenda for action now — setting us in the right direction through to the second decade of the next century — was the Task Force's primary objective and major responsibility. The challenge lay in taking today's realities and extending them into the future.

ESTABLISHING THE PARAMETERS

The members of the Task Force recognized from the outset that the directions for the future would have to be reasonable, understandable, justifiable, doable and, in some sense, desirable — otherwise, how would they motivate Albertans to action?

They also realized that fiscal realities would influence the manner in which priority actions could be addressed. As Canadians, we have mortgaged our future. According to the Conference Board of Canada, our combined national and provincial debts now equal our Gross National Product, placing us in a financially tenuous position.

The mental exercise of "future thinking" demands respect for the genuine diversity of its possibilities. It was necessary to formulate projections of where Albertans might be headed... determine which seemed the most probable... anticipate where we might divert from sustainable development... and then explore alternatives which would lead us down a preferred path. The Task Force wanted to reinforce the positives and reverse the negatives.

To assist them in the process, the Task Force worked from an information base of various sources:

- review of public consultation processes and other policy initiatives, including matters underway such as the Clean Air Strategic Alliance and the development of the Forest Conservation Strategy;
- research on regional, national and international environmental priorities, processes and issues;
- meetings with individual Albertans and Alberta-based organizations;
- presentations on trends, paradigms, public opinion surveys and statistical information;
- a comprehensive two-stage, modified Delphi survey that sought the opinions of hundreds of knowledgeable individuals in Alberta, Canada and other countries for their views about trends affecting sustainable development;





Delphi workshop, Edmonton
June 1994

- workshops on environmental trends and actions;
- a survey of students at five urban and seven rural high schools to gauge their understanding of the concept of sustainable development; and
- meetings with numerous Alberta organizations and individuals from environmental groups, private sector and industry associations, and municipal government organizations.

Everything — the information, the materials, the meetings — underlined the strong links between our environment and our economy. Albertans told the Task Force, again and again, that environmental priorities are economic priorities.

SEEKING EXPERT OPINION

The Task Force sought reaction and new ideas from a broad range of people to ensure that the recommended priorities were soundly-based and reflected current information. Initially, experts from inside and outside government prepared issue and opportunity statements. Others gave input on future environmental trends and on the current state of public opinion on the environment. (See Appendices 2 and 3.)

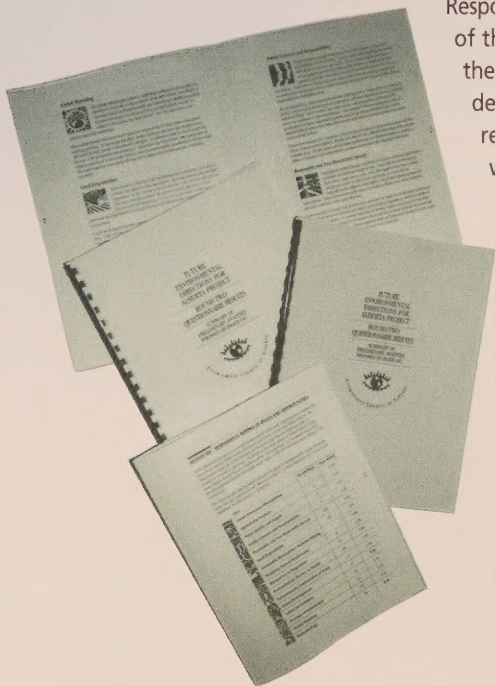
The most innovative and ambitious input mechanism was a two-stage, modified Delphi survey conducted between March and June 1994. The extensive questionnaires were directed at hundreds of interested and knowledgeable persons in Alberta, across Canada and in other countries. They were designed to identify the most significant, long-term factors that will influence our environmental future — those trends that either support or hinder progress toward sustainable development.

"We got a lot of good, solid ideas from the survey. We know what people are concerned about."

Werner Messerschmidt, Task Force Member

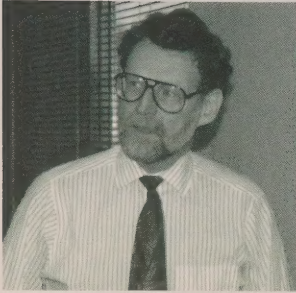
Response was extremely gratifying, particularly considering the complexity of the questionnaires and the amount of time required to complete them. The Task Force wishes to thank the participants who, collectively, devoted thousands of volunteer hours to preparing their thoughtful responses. In addition, survey participants were invited to follow-up workshops in Calgary and Edmonton, where they met with Task Force members and provided input on a draft list of priorities. (See list of respondents and participants, Appendix 4.)

The survey analysis provided a wealth of interesting ideas and diverse opinions. These formed a major component of the Task Force's information base, identified emerging trends and areas of concern, greatly assisted the development of forward-looking priorities, and are reflected in the recommended directions. The diversity of the thoughtful and provocative comments — supportive and non-supportive — is represented in marginal quotes throughout the report.

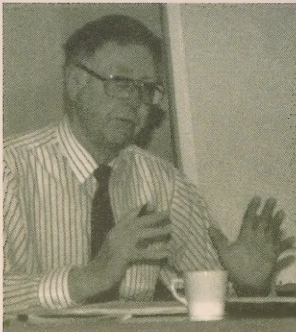


"I skate to where the puck is going to be, not where it has been."

Wayne Gretzky



David Stuart



Elmer Kure

"The survey was well-prepared, well-designed, comprehensive and well-prepared... It stimulated thought outside ordinary limits."

Delphi Survey Participant

DISCUSSING THE ALTERNATIVES

During its tenure, the Task Force met 18 times to discuss the key trends, priorities and recommendations the members would ultimately include in this final report. The process of satisfying personal interests and building consensus in itself became a learning experience. Members acknowledged the limits of human control over nature, and measured their preferences against an understanding of what can and cannot be accomplished in a day or a decade.

At the heart of developing sustainable development priorities is the need to envision what Alberta's environment — and economy — will look like in 20 years.

Will Alberta have made real progress toward sustainable development?

Will we have positioned the environment as an economic advantage?

Will we have responded adequately to the need to sustain our resources and environment?

Or, despite our efforts, will we have fallen victim to global environmental factors over which we have little or no control?

There are many possible tomorrows. The participants in the Delphi survey provided glimpses of our future in response to the questions: *What do you think Alberta's environment will be like in 20 years' time? Why?*

A summary of opinions

Most respondents — 61 per cent — were cautiously optimistic and predicted that Alberta's environment in 20 years would not be significantly different from today's. However, they did see serious challenges that must be addressed. They felt that negative environmental impacts will level off as public concern over health effects increases, prompting government and industry attitudes to change.

A smaller percentage envisioned extreme and polarized scenarios. The more optimistic respondents — 16 per cent — felt that, through regulation and rewards, Alberta will be one of the best-protected areas in the world. Through increased awareness of sustainable processes, Alberta should be able to create and maintain a healthier environment than it has now. They believe technological developments, public pressure and government regulations will ensure concurrent increases in productivity and environmental protection.

The more pessimistic participants — 23 per cent — warned that, unless major limits and responsibilities are attached to growth and development, Alberta will be "fighting for its life" in 20 years' time. If we focus on short-term economic gain, they said, we risk the eventual depletion of all our resources. Products made in Alberta will have an increasingly difficult time competing on world markets. Our overall wealth and standard of living will be in jeopardy.

Some respondents felt there will continue to be tension between Albertans' competing desires to both consume and live in harmony with their environment. While some areas will be protected for their wilderness characteristics, others will be intensely developed for their extractable resources or agricultural productivity.

The incremental and cumulative impacts of development are expected to seriously impair the quality of Alberta's environment. Strides made in environmental protection and remediation are likely to be offset by the environmental consequences of continued population growth and industrial development.

"The importance of maintaining biodiversity at all its different levels may be the most difficult concept for the public to grasp, and may have the most profound implications for the future of all humankind. Extinction is a natural process which has been pushed to unnatural rates by humans."
Delphi Survey Participant

Regarding overall environmental quality, respondents presented a broad range of predictions. Climate warming caused from global atmospheric changes may be evident in 20 years. If global warming has only a minor effect, southern Alberta may experience more droughts than expected. Wilderness areas may shrink, large mammal populations will decline and one or two major species may be lost. Cottonwood forests along most southern river valleys will have largely disappeared, taking with them the birds and wildlife populations that depended on them.

On the other hand, some participants believe ecological restoration will be the response to existing environmental degradation. A common stewardship of the land will be achieved through government and industry partnerships that preserve natural wilderness areas and develop multi-purpose sustainable land-use strategies. This higher level of coordinated resource management will improve many aspects of our environment, and public demand will be a driving force for this improvement.

A sampling of what was said

"Alberta's environment could be slightly improved if we are strong enough to respect the principle of sustainable development, that is, development that satisfies today without compromising tomorrow."

"Without a fundamental and somewhat radical change in our expectations of material wealth, energy use and convenience, Alberta is fated to go the route of all great civilizations that demanded too much of the earth."

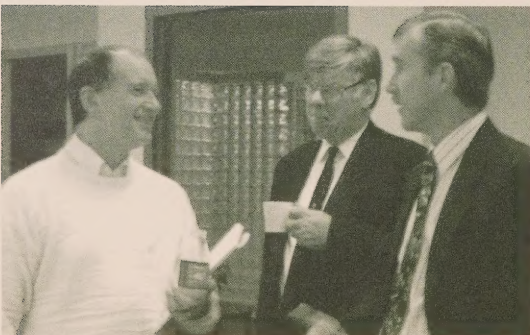
"Degradation will have been subtle enough, relative to elsewhere, that public complacency will remain."

"Either we get our house in order or the order will impose itself. In either case, the change will be towards a sustainable conserver society."

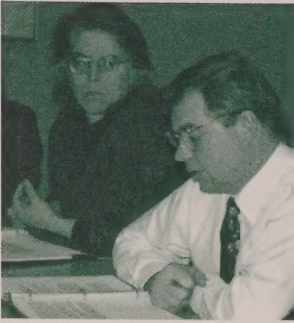
"All in all, one could expect a more impoverished environment but one still recognizable as similar to today's."

"We must acknowledge that our economy depends on the health and sustainability of the ecosystem. Without a healthy [ecosystem], there will be no economy."

"Alberta is so rich in natural space that it is hard for most people to perceive any meaningful erosion in this base. Even in 20 years, we are likely to enjoy a much healthier and unspoiled environment than most areas of the world — but does that mean our situation will be positive in a normative sense?"



Bill Calder, Malcolm Wilson, and Millard Wright



Judy Huntley and Clarence Olthuis

"Despite the strides made in the last 20 years, the adoption of practices, policies and regulations needed to achieve sustainable development will require several generations."

Delphi Survey Participant

The Task Force interpretation

These different views of the future underline the uncertainty inherent in any prediction. Accurate prediction is made even more difficult by the interdependence of environmental, economic and social factors.

Despite the major differences in the way survey respondents saw the future, they all recognized that the future depends on how Alberta meets its environmental and economic challenges in the present. They are hopeful that public involvement in decision-making processes and fully-integrated management of resources will sustain Alberta's economic and environmental health. They recognize that mind-set, policies and socio-economic infrastructure will be slow and painful to change. Respondents said that the course to sustainable development must be set within five years, and that the results will take generations to achieve. Although there will be disagreements about specific issues and between geographic regions, balance and reason will prevail.

Respondents identified four interdependent steps to achieve Alberta's sustainability goal: planning, education, implementation and fine-tuning. Planning needs to involve all levels of government in consultation with industry and the public. Education of all Albertans about the issues and their solutions is essential, and research into new environmentally-sound technologies must continue. Implementation will require legislation, regulation and the enforcement of set standards. Monitoring can trigger responses which will lead to fine-tuning of products and processes.

The Task Force members recognize that the temptation to predict a singular future — whether good or bad — arises from the sheer complexity of the world we live in. Not surprisingly, world-shaking events with high visibility — the wonders of technological salvation or the horrors of ecological catastrophe — are more exciting than incremental change resulting from sound day-to-day choices. The Task Force chose not to make a prediction of what the future would be, preferring to concentrate on what the future should be.

The Task Force shares the opinion of the respondents who believe the future depends on meeting challenges in the present. The members believe we cannot afford to wait to set the course toward real sustainable development.

The Task Force on Future Environmental Directions believes Albertans must make the hard choices now about where to focus our time, effort and money.

The time to start shaping tomorrow is today.



David Anderson, George Kupfer, Bob Page and Diane Thompson, with Barb Deters, Bill Calder and Kathy Acheson



Don Laishley and Werner Messerschmidt touring the "Model Forest" at Hinton

SETTING PRIORITIES

The establishment of future environmental directions for Alberta requires a rigorous and intelligent stance. Based on all the information before the Task Force and combined with their own beliefs, the members recommend five priorities for Alberta. The priorities are future-oriented, and supported by 24 directions that will help guide us into the next century.

The Task Force priorities, although numbered, are not ranked — they are presented as a package. It is expected that various segments of society will focus on specific priorities, and elect to act on directions applicable to their circumstances.

PRIORITY ONE

Make sustainable development a fundamental value in the way we govern and conduct our everyday lives.

Directions:

1. Include the Alberta Sustainable Development Vision statement and/or its elements in relevant legislation.
2. Strengthen internal Alberta government sustainable development decision-making.
3. Minimize or avoid discharges which pollute our air, water and land.
4. Expand the application of the environmental precautionary approach.
5. Strengthen post-secondary sustainable development education.
6. Expand workplace sustainable development education.
7. Make sustainable development a formal part of the Kindergarten to Grade 12 curriculum, and ensure necessary teacher training and support.

PRIORITY TWO

Implement sustainable resource management practices to protect our air, water and land.

Directions:

8. Use government policy and local coordinated resource planning as two key means to ensure sustainable land and resource management.
9. Complete Alberta's system of protected lands.
10. Implement systematic natural resource accounting.
11. Focus Alberta's Agriculture and Food Council on the active coordination of industry progress toward sustainable development.
12. Make sustainable tourism a reality in Alberta.
13. Place priority on maximum value-added manufacturing and processing in resource development decisions.
14. Develop better health information related to the environment.

PRIORITY THREE

Maintain the “Alberta Advantage” and ensure our success as a trading province through sound environmental management.

Directions:

15. Become a leader in environmental management and communicate our progress.
16. Ensure sufficient numbers of trained environmental professionals.
17. Develop environmental technology and expertise to meet the needs of the future.

PRIORITY FOUR

Develop innovative, cost-effective ways of doing business to support sustainable development.

Directions:

18. Move full-cost accounting from theory into practice.
19. Actively pursue objectives-based alternatives to prescriptive environmental regulation.
20. Review provincial fees, taxes, and subsidies to determine their effect on sustainable development progress.

PRIORITY FIVE

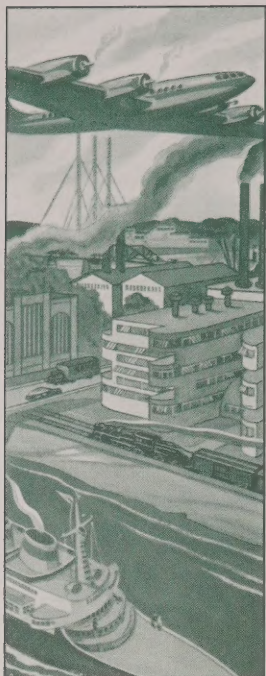
Ensure greater environmental empowerment and accountability for all sectors of Alberta society.

Directions:

21. Develop a mechanism to coordinate and promote the implementation of sustainable development.
22. Promote public and private sector reporting on sustainable development progress.
23. Improve access to usable environmental information.
24. Empower Albertans through measures that facilitate individual environmental responsibility.

The Task Force members realize that certain conditions from the past constrain our present and future behaviours, and may even set the boundaries for implementation of some recommendations. However, because freedom consists of the capacity to invent and to choose a better way of life, the Task Force members strongly urge all Albertans to adopt practical actions now to ensure future prosperity.

The Task Force concluded that Albertans want a goal for the future that is believable — not one so hopeful it is unrealistic, and definitely not one so grim it causes despair. Albertans deserve a future that promises both economic vitality and environmental integrity. Albertans need a sustainable future that is embedded in our legislation, our corporate planning, our political platforms, and our individual actions. The future will be what we make it.



SECTION 3

"Our future is tied to the management of global issues. We do not have environmental borders, and decisions are beyond our direct control."

Delphi summary
Praxis Inc.

The Challenges of Change

"...profound societal change... is now affecting virtually every aspect of our lives. Such change — economic, technological, social, psychological and ecological — demands that we face, understand, and respond to new realities."

The Rainbow Report: Our Vision for Health
Premier's Commission on Future Health Care for Albertans

The Alberta of the 21st Century will be shaped by actions of the past... by directions being taken today...and by enlightened economic and environmental strategies. It will be influenced by the number of people living in the province...by changing demographics...and by the values of its citizens.

Albertans function as part of the dynamic, global ecosystem. Because we occupy space, consume resources and generate waste, we play a direct role in ecosystem processes. Changing societal values and behaviours greatly influence our interaction with the environment and our progress toward sustainable development.

The Task Force examined historical and emerging trends, specific statistical data, and results of its Delphi survey. It looked at what's happening in Alberta, Canada and around the world. The trends are neither predictive nor prescriptive, but they do indicate some of the possibilities that exist in the future based on the information available now. These forecasts concentrate on probable events and projections that allow us to establish our priorities and plan our future directions. Barring sudden or violent change, many aspects of the present are likely to persist well into the next century — providing a degree of comfort to those people who find the conventional picture of the future more acceptable than extreme alternatives.

This introduction to Section 3 contains an overview of select dimensions of demography and human activity — first globally, and then provincially — which set the broad context for the recommended priorities and the directions.

Following this introduction, the five priorities are presented in separate chapters, supported by specific directions for implementation and suggestions for who most logically should accept primary responsibility. To put the priorities into perspective, more detailed information is contained in the preamble to and rationale for the 24 directions.

PREVAILING GLOBAL TRENDS

When a tree falls in the Rain Forest of Brazil, do we hear it in Alberta? In this age of computer technology, which has given us tools such as electronic mail and geographic information systems, the answer is a resounding "yes!"

As various agencies and news media monitor and measure environmental performance in other parts of the world, so too are we being watched and reported on. Little happens in the Rain Forests of Brazil or British Columbia — or the Boreal Forest of Northern Alberta — that worldwide networks are unaware of or unconcerned about.

*"A worldwide information highway
will truly bring a global village.
Even today it is possible to chat on a
computer with anybody in the world,
and there is no way of knowing
whether they are next door or in a
tin hut in Thailand."*

Delphi Survey Participant

Number of Japanese per square mile: 817
Harper's Index

For example, the Internet — the world's largest collection of computer networks — serves as an extensive resource to environmentalists, while several specialized systems — including APC, the Association for Progressive Communications — have the environment as one primary focus. The Internet has grown to nearly 1.5 million host systems, serving an estimated 11 million people whose interaction is global and immediate. Users also can connect to the APC's 16-country environmental information networks which serve more than 20,000 activists in 133 countries.

These massive international computer systems help organizations share information, keep track of activities and participate in on-line conferences. Greenpeace campaigners use their network to monitor international traffic in hazardous waste, while the Sierra Club of Western Canada creates detailed maps of forest cover on Vancouver Island using GIS, geographic information systems.

The Task Force members recognize that it is difficult for many of us to relate to the larger picture and place our activities in the context of global issues and pressures. However, because most worldwide production and consumption levels are calculated on a per capita basis, the actions and activities of individual Canadians form part of the overall information base used to calculate the planet's "carrying capacity". Indeed, Canadians top the charts in such indicators as grain consumption per person; rank second in per capita carbon emissions; and are fifth in beef consumption per person. Canada is the world's third largest producer of industrial roundwood used to manufacture lumber, paper and other materials; the fourth largest producer of paper; and the largest exporter of forest products.

For the second time in five years, the United Nations selected Canada in 1994 as the most desirable country in the world in which to live. Based on what it calls the "human development index", using 1992 data, the evaluation focused on three broad categories — wealth, knowledge and longevity — as measurements of the "relative socio-economic progress of nations".

Geographically, Canada is the second largest country among the world's 265 sovereign nations. With 28.1 million people — only 3.1 per square kilometre — it is home to just 0.5 per cent of the world population. The UN designation — when combined with our vastness, abundance of resources, comparatively small population and relatively high standard of living — can contribute to a certain false sense of security among Canadians. However, we are not isolated from global changes and pressures.

As conditions in other parts of the world deteriorate — whether politically, economically or environmentally — Canada will become increasingly attractive to people seeking new homes. Our natural resource commodities such as energy, forestry and agricultural products will be in greater demand internationally.

In developing this section, the Task Force used various sources of up-to-date global analysis, including information compiled by the United Nations, the World Bank, the World Resources Institute and the Worldwatch Institute. These respected research organizations analyze interdisciplinary demographic, economic and environmental data from around the world.

There is an undisputed need for more efficient use and more equitable distribution of world resources, combined with an overall reduction of consumption. In *Global Outlook 2000*, the United Nations supports these conclusions and states that:

"Sustained development requires a recognition that vigorous economic growth is essential to solve the problems of poverty and underdevelopment and related environmental problems. Current patterns of growth must be changed, however, to make them less resource and energy intensive and more equitable. Inequalities in international economic relations, coupled with inappropriate economic policies in many developed and developing countries, continue to cause environmental degradation and otherwise limit the development process. Growth derived from rapid resource depletion is neither ecologically nor economically sustainable."



The State of the World: A Worldwatch Institute Report on Progress Toward a Sustainable Society concentrates on concern that we are reaching what biologists term our "carrying capacity". Carrying capacity is the largest number of any given species that habitat can support indefinitely. The report says:

"It takes no stretch of the imagination to see that the human species is now an agent of change of geologic proportions. We literally move mountains to mine the earth's minerals, redirect rivers to build cities in the desert, torch forests to make way for crops and cattle, and alter the chemistry of the atmosphere in disposing of our wastes...."

"It may be the ultimate irony that in our efforts to make the earth yield more for ourselves, we are diminishing its ability to sustain life of all kinds, humans included. Signs of environmental constraints are now pervasive. Cropland is scarcely expanding any more, and a good portion of existing agricultural land is losing fertility. Grasslands have been overgrazed and fisheries overharvested, limiting the amount of additional food from these sources. Water bodies have suffered extensive depletion and pollution, severely restricting future food production and urban expansion. And natural forests — which help stabilize the climate, moderate water supplies, and harbour a majority of the planet's terrestrial biodiversity — continue to recede."

"They're not making any more land."

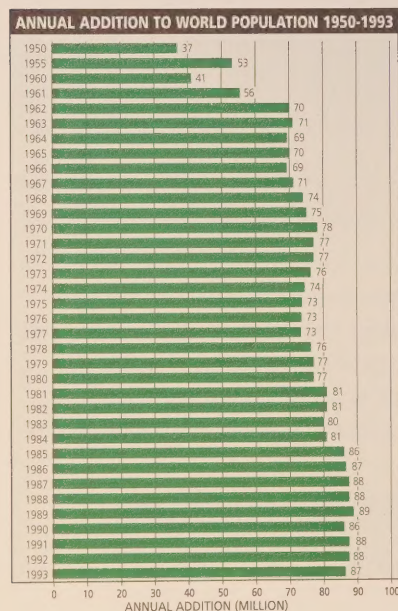
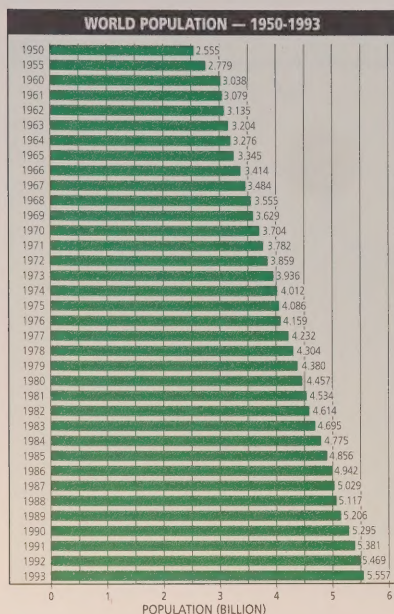
Elmer Kure, Task Force Member

"...The central conundrum of sustainable development is now all too apparent: population and economies grow exponentially, but the natural resources that support them do not."

How quickly we are actually approaching the Earth's carrying capacity is debatable. However, it is clear that our demands on resources and the associated environmental impacts will continue to grow.

Key Global Indicators

Since mid-century, three trends have contributed directly to the excessive pressures now being placed on the Earth's natural systems — the doubling of the world population, the quintupling of global economic output, and the widening gap in the distribution of income.



Source: *Vital Signs 1994* — U.S. Bureau of Census, Center for International Research

In 1993, the world population increased by 87 million people to 5.6 billion. Ninety-four per cent of growth occurred in developing countries which now account for 78 per cent — 4.3 billion people — of the total population. World population is projected to reach 8.9 billion in 2030.

LIFE EXPECTANCY — 1950-1993			
	1950 (age in years)	1993	% INCREASE
WORLD	46	65	41%
Industrial Countries	66	74	12%
Canada	69	78	13%
Developing Countries	41	63	54%

Source: *United Nations, World Population Prospects; Population Reference Bureau, 1993 World Population Data Sheet*

Since the middle of the century, global average life expectancy has risen by almost 20 years. This is a dramatic improvement, unmatched in any previous period in history. In industrialized countries, longer life is likely the result of a shift in emphasis to disease and injury prevention. In developing countries, improvements in basic sanitation, water supplies, health education, immunization and nutrition have been major factors in increasing longevity.

The world population is increasing faster than global production output in some cases. With food production, for example, the trend is alarmingly clear.

PRODUCTION TRENDS PER PERSON OF GRAIN, SEAFOOD, AND BEEF MUTTON, 1950-93				
Foodstuff	TREND PER PERSON			
	Growth Period	Per cent Growth	Decline Period	Per cent Decline
Grain	1950-84	+40%	1984-93	-12%
Seafood	1950-88	+126%	1988-93	-9%
Beef & Mutton	1950-72	+36%	1972-93	-13%

Source: *Vital Signs 1994*, Worldwatch Institute

World food production, already declining on a per capita basis, faces ongoing constraints including availability of fertile croplands and rangelands and water supply, and near-limit fish catches. As overall consumption rises, farmers and fishers in many parts of the world will be hard-pressed to expand enough to keep up with rapid population growth.

The Worldwatch Institute believes the world has entered the Environmental Era. Based on the latest information on the sustainable yield potential of the three food production systems — croplands, rangelands and fisheries — the Institute developed the following scenario of future output, assuming no dramatic new breakthroughs occur.

COMPARISON OF KEY GLOBAL INDICATORS IN THE ECONOMIC ERA AND THE ENVIRONMENTAL ERA

INDICATOR	THE ECONOMIC ERA: 1950-1990	THE ENVIRONMENTAL ERA: 1990-2030
World Population	More than doubled from 2.5 to 5.3 billion, adding 2.8 billion or 70 million per year and slowing progress.	Projected to increase from 5.3 to 8.9 billion, adding 3.6 billion or 90 million per year. For much of humanity, this may reverse progress.
Grain Production	Nearly tripled from 631 million tons to 1,780 million tons, or 29 million tons per year.	Expanding by 12 million tons per year (rate of last eight years) may be best that can be expected.
Beef and Mutton Production	Increased 2.6 times, from 24 to 62 million tons.	Little growth expected.
Fish Catch	From 22 to 100 million tons; per capita up from 9 to 19 kilograms.	No growth expected; per capita dropping from 19 kilograms to 11 kilograms.
Economic Growth	Economy expanded 4.9-fold from nearly \$4 trillion to \$19 trillion, an annual gain of 4.2 percent. Growth was a focus of national economic policymaking.	Averaging even half the 1950-90 rate may be difficult. Focus will shift from growth to sustainability and distribution.
Growth in Grain Demand	Two thirds from population growth; one third from rising incomes.	Nearly all expansion will be needed to sustain population growth.
National Security	Largely ideological and military in nature; defined by the cold war.	Food and job security will dominate, often driving hungry and jobless people across national borders.

Source: Worldwatch Institute

*"Alberta has no environmental borders.
What happens elsewhere affects us."*
Delphi Survey Participant

Should this scenario prove out during the next 25 years, the pressures on renewable and non-renewable resources — particularly in countries like Canada — will be enormous.

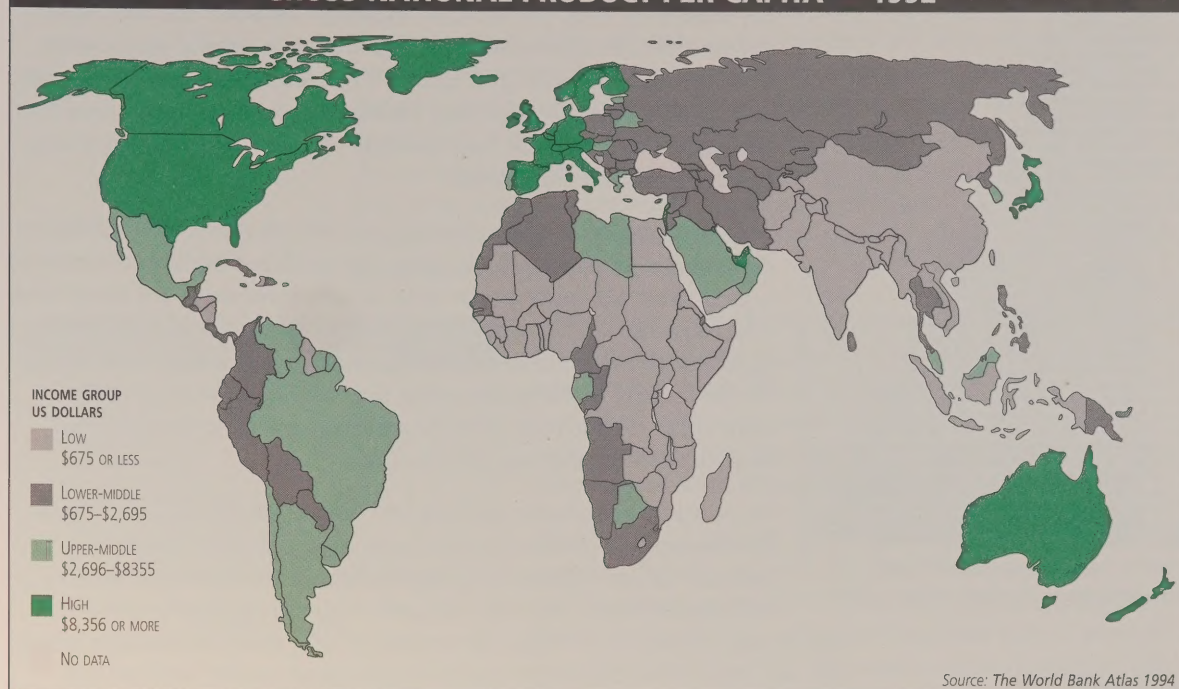
The capacity to support the needs of the global community is determined by numerous factors over-and-above basic food requirements. For example, it depends on the level of consumption of various resources and the amount of waste this generates. It also depends on trade and technology, and on successfully dealing with adverse conditions. For the most part, the primary determinants are hinged to income distribution resulting from economic activity.

GLOBAL INCOME DISTRIBUTION — 1960-1989

Year	SHARE OF GLOBAL INCOME GOING TO		Ratio of Richest to Poorest
	World's Richest 20 Per cent	World's Poorest 20 Per cent	
1960	70.2%	2.3%	30 to 1
1970	73.9%	2.3%	32 to 1
1980	76.3%	1.7%	45 to 1
1989	82.7%	1.4%	59 to 1

Source: United Nations Development Programme, Human Development Report 1992

GROSS NATIONAL PRODUCT PER CAPITA — 1992



Source: The World Bank Atlas 1994

WORLD GROSS NATIONAL PRODUCT PER CAPITA — 1992

GNP PER CAPITA 1992	NUMBER OF ECONOMIES	GNP (US\$000,000) 1992	POPULATION (000,000) 1992	GNP PER CAPITA (US\$) 1992
Low	57	1,139,000	3,215	350
Lower-middle	69	1,614,000	949	1,700
Upper-middle	43	1,837,000	451	4,070
High	38	18,297,000	828	22,100
World	207	22,887,000	5,443	4,200

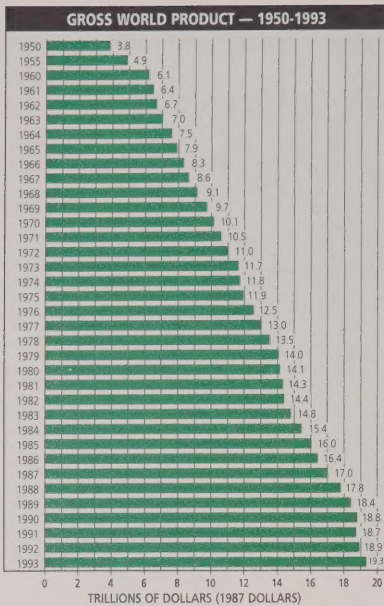
Source: The World Bank Atlas 1994

More than a billion people — one-fifth of the world population — live on less than a dollar a day. Western Europe and the United States achieved this standard of living more than 200 years ago. Despite tremendous advances during this century, the imbalance between rich and poor persists and widens, among nations and within nations.

According to the Worldwatch Institute, it is this chasm of inequity that is a major cause of environmental decline: "It fosters overconsumption at

the top of the income ladder, and persistent poverty at the bottom. ...people at either end of the income spectrum...damage the Earth's ecological health — the rich because of their high consumption of energy, raw materials, and manufactured goods, and the poor because they must often cut trees, grow crops, or graze cattle in ways harmful to the Earth merely to survive from one day to the next."

During the past three decades, gross world product has risen at an average annual rate of almost 4.0 per cent, while international trade has risen by 6.0 per cent per year. Economic activity in various parts of the world can be affected dramatically by significant structural changes — most notable in 1993 were China, which registered 13 per cent growth, and the former Soviet Union, where economic output declined by 14 per cent.



Sources: World Bank and International Monetary Fund tables

Ratio of the number of miles driven by the Japanese to the number of miles they ride on trains each year: 2:1

Ratio of the number of miles driven by Americans to the number they ride on trains: 28:1

Tons of carbon dioxide produced by one U.S. automobile in its lifetime: 42
Harper's Index

The world output of goods and services grew from \$3.8 trillion in 1950 to \$19.3 trillion in 1993. The economic expansion between 1992 and 1993 is attributable to an impressive 6.1-per cent increase in developing countries, while the industrial ones grew by only 1.1 per cent. The World Bank reports that during the past 40 years, many developing countries "...have seen their average incomes rise more than five-fold — a rate of progress that is extraordinary by historical standards".

This kind of growth in developing countries will give rise to improved buying power and increased demand for consumer goods and modern conveniences — all of which will create greater stress on natural resources. The *World Bank Atlas* suggests that "...industrial and energy-related pollution (local and global), deforestation caused by commercial logging, and overuse of water are the result of economic expansion that fails to take account of the value of the environment. Here the challenge is to build recognition of environmental scarcity into decision-making."

For example, air pollution has long been associated with industrialization. The development of more energy-efficient technologies has resulted in reduced carbon emissions in some industrial countries, and modest increases in others. However, emissions in rapidly developing countries in

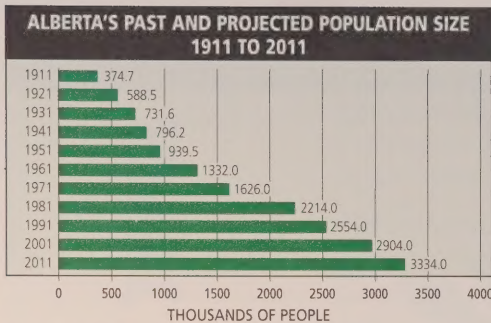
Asia are skyrocketing. A 43-million ton increase in 1992, mostly attributable to coal burning, made China the world's second largest carbon emitter, between the United States and Russia. Interestingly, on a per capita basis, the ranking of carbon emission levels changes: the U.S. leads at 5.4 tons per person, followed by Canada at 4.2, Russia at 4.0, Germany at 3.1, Japan at 2.4, and China at only 0.6 tons.

In addition to industrial sources of carbon, vehicles are major contributors to air pollution. During the past four years more than 140 million automobiles have been produced. Worldwide statistics indicate an average of more than 12 people per car, but huge disparities exist: industrialized countries register two to five people per car, while China shows more than 200. It is worth noting that, despite the huge popularity of and reliance on automobiles in industrial countries, more than 90 per cent of the world population do not own cars.

The response to sustainable development varies among countries depending upon their stage of development, their economic structures, their environmental policies, and their national priorities. Increasingly, international lending institutions are demanding environmentally responsible practices as a condition of financial support. There is nothing automatic about sustainable development — it occurs when countries and development agencies deliberately introduce policies that ensure its implementation.

ALBERTA'S CHANGING DEMOGRAPHICS

Like every other region in the world, Alberta fits into the larger global picture. Our growing population stimulates economic activity and exerts numerous pressures on the environment. People consume resources by growing food, manufacturing materials, heating and lighting buildings, and fuelling vehicles. We generate wastes and dispose of them in landfills and through discharges to the air and watercourses. As we have grown in numbers, we have altered the natural landscape with homes, businesses, industrial complexes, educational and recreational facilities, farms, and transportation routes. Whether busy at work or at play, Albertans always have some impact on the environment.

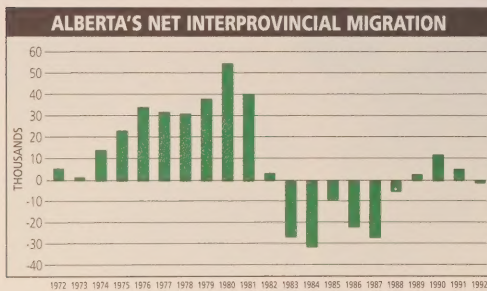


Source: Statistics Canada

Alberta's population has grown throughout its history. The most recent dramatic increase was recorded between 1971 and 1981, when an additional 586,000 people became Albertans. Population figures are calculated on natural increase — births minus deaths — and net migration — interprovincial and international newcomers minus those moving out of the province.

We now total 2.6 million people, essentially an equal number of males and females — just 9.2 per cent of the Canadian population. While increases are expected to be relatively slow during the next two decades, the population is projected to be in excess of 3.3 million people by 2011. This would mean an increase of 700

thousand people, representing more than a 20-per cent growth in population — equivalent in numbers to adding another Edmonton.

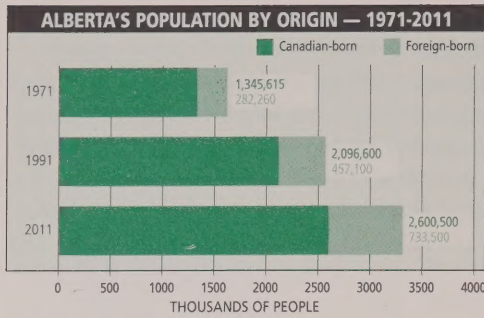


Positive numbers indicate more people came to Alberta. Negative numbers indicate more people left Alberta.

Source: Statistics Canada

From 1974 to 1981, Alberta experienced a net increase in newcomers from other provinces — peaking in 1980 with 54,618 people incoming. Due to the province's economic downturn, this was followed by an uncharacteristic net outflow of people between 1983 and 1988 — peaking in 1984 with 30,591 people outgoing. Migration patterns have been comparatively stable during the past six years, and are considered a signal of renewed confidence in the Alberta economy.

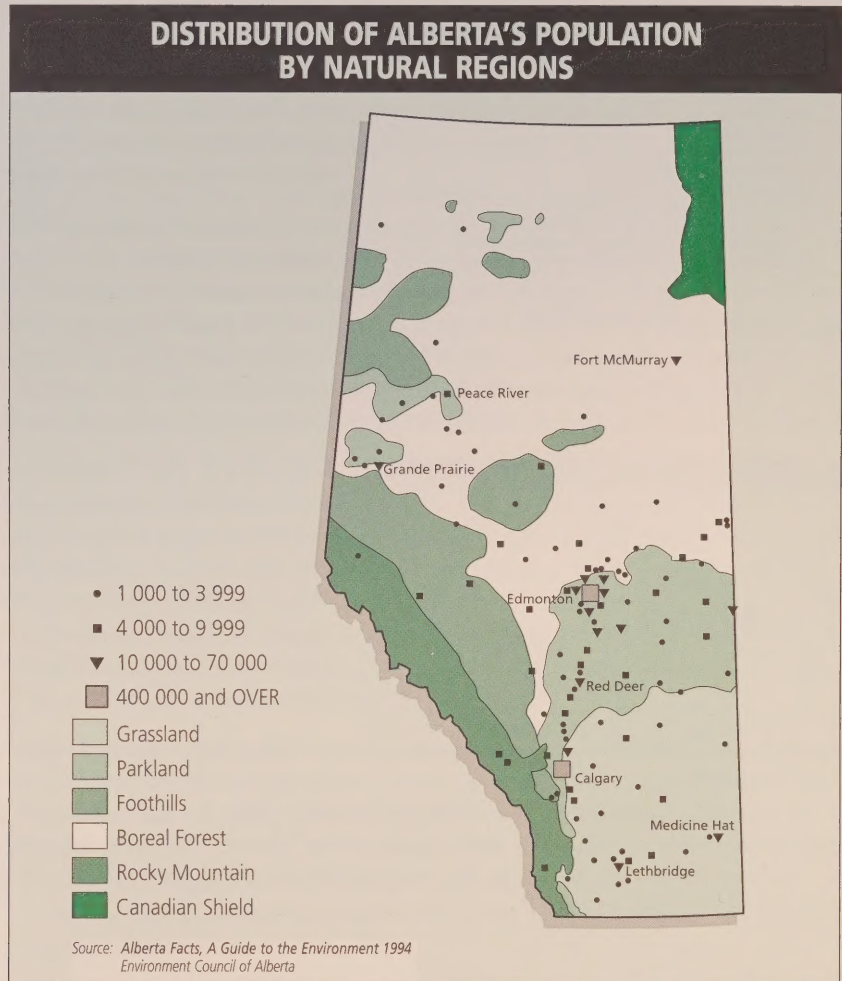
In 1992, Alberta received about 7.0 per cent of Canada's overall immigration, down from 13.2 per cent in 1980, and 10.7 per cent in 1985. The number of new Canadians accepted annually is determined by the federal government. The total fluctuates, dependent on nationally-set immigration quotas, and world events which may influence Canada's acceptance of refugees.



Source: Alberta Advanced Education and Career Development

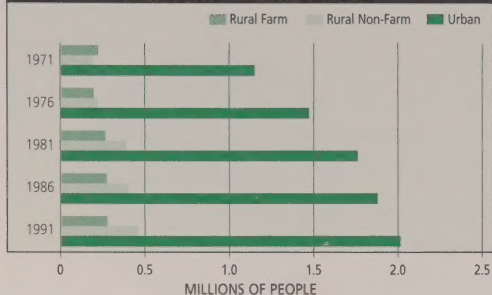
Immigration has always had a major demographic impact on Alberta society. In 1911, 57 per cent of Albertans were immigrants, most of them from Europe. By comparison, in 1991, just under 22 per cent of Albertans — 457,000 people — were born outside Canada.

Europeans still make up the majority of the province's immigrant population but, in recent years, the contribution from other regions, particularly Asia, has increased. The majority of newcomers settle in Edmonton and Calgary.



Alberta's population is far from evenly distributed across the province. More than 2.16 million Albertans inhabit the Grassland and Parkland regions. While the area comprises only about 25 per cent of the landscape, it accommodates more than 80 per cent of the population. The Boreal Forest, comprising 48 per cent of the province, is the next most populated with about 400,000 people — roughly 15 per cent. The rest of Albertans — less than 100,000 — occupy the Rocky Mountain, Foothills and Canadian Shield regions, which together comprise 26 per cent of Alberta.

ALBERTA'S URBAN, RURAL NON-FARM, RURAL FARM POPULATION — 1971 TO 1991



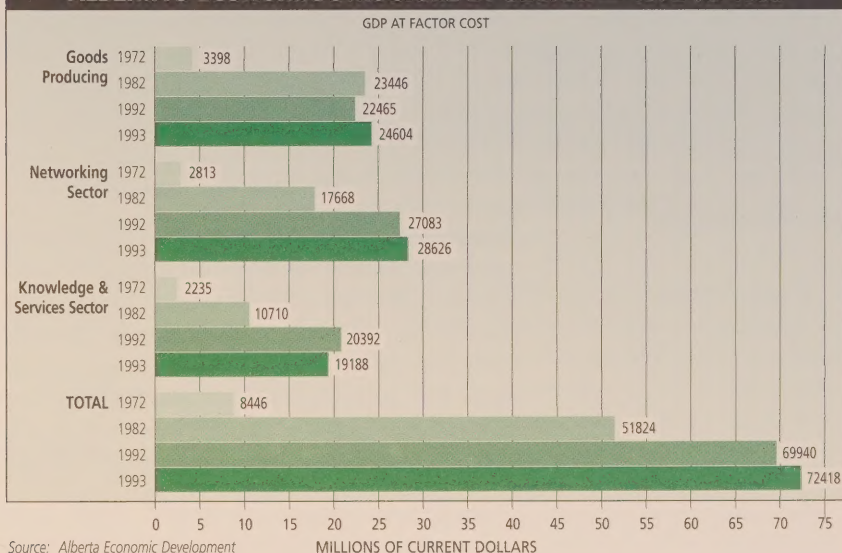
Source: Market Analysis and Statistics Branch, Alberta Agriculture, Food and Rural Development

Alberta's urban population, now surpassing two million people, has grown steadily during the past 20 years and the trend can be expected to continue. The farm population is declining as young people move to towns and cities to seek careers and retired people seek the amenities of community living. There has been a slight increase in rural non-farm population as city dwellers seek urban lifestyles in rural settings. Improved communications and more flexible work arrangements, fostered by telecommuting, have contributed to this increase.

Economic development trends are affecting the geographic distribution of the population. One trend is the growth of the manufacturing and service industries in the metropolitan centres. Another is the shift from the original areas of oil and gas discovery to new areas of activity in the foothills and the north. As well, a growing forestry industry is drawing more people to the boreal forest region. The result is a north-westward pull on migration as people follow jobs offered in field work, servicing and supply.

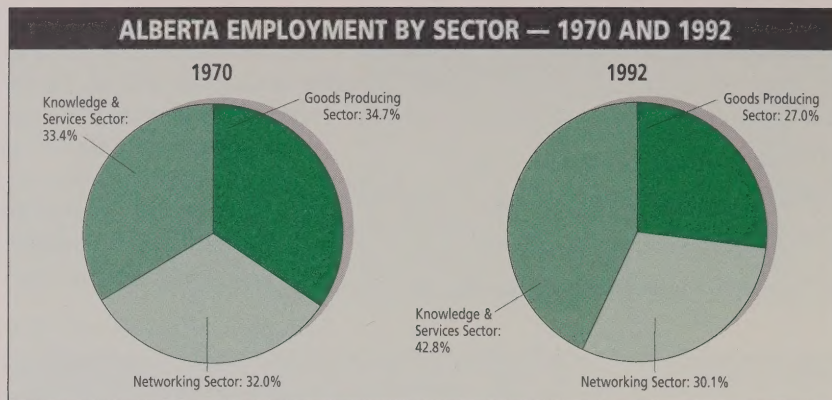
Furthermore, during the past two decades, Alberta's economic structure has gradually changed. The shifts that have occurred reflect the trend that a more modern, complicated economy needs a larger proportion of activity and employment which support our services sector and value-added industries.

ALBERTA'S ECONOMIC STRUCTURE BY SECTOR — 1972 TO 1993



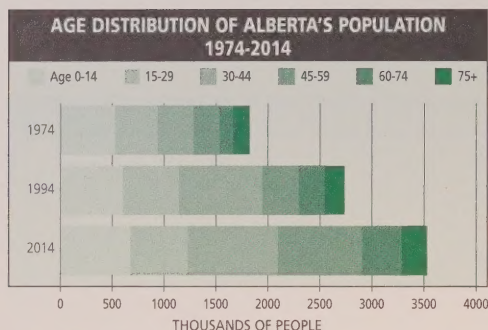
Source: Alberta Economic Development and Tourism

The relative importance of the goods producing sectors — oil/gas and mining, agriculture, forestry, manufacturing and construction — in terms of value-added contribution to the provincial economy decreased from 41.6 per cent in 1970 to 35.1 per cent of the Gross Domestic Product in 1992. At the same time, the networking sectors — public utilities, transportation, communications, wholesale and retail sales, finance, insurance and real estate — and the knowledge and services producing sectors — business and personal services, and administration — increased from 32.8 per cent to 37.0 per cent, and from 25.6 per cent to 27.9 per cent respectively.



Source: Alberta Economic Development and Tourism

These structural changes are particularly evident in the distribution of employment. The percentage share of employment by the goods producing sectors declined noticeably from 34.7 per cent in 1970 to 27.0 per cent in 1992, and the networking sector slightly from 32.0 per cent to 30.1 per cent. However, the knowledge and services producing sectors increased significantly from 33.4 per cent to 42.8 per cent.



Source: Alberta Bureau of Statistics

As with most western societies, Alberta's population is expected to age significantly during the next several decades as the "baby boom" generation gets older. The proportion of Albertans who are 60 years old and older is projected to rise from 13 per cent in 1994 to 19 per cent in 2014. The largest growing age segment could be people over 75 — whose numbers might more than double in the 10-year period — as life expectancy continues to rise. In 1994, average life expectancy was 81.7 years for females and 74.7 years for males — and it is projected to rise by 2016 to 83.7 and 78.5 respectively.

Dependent children will account for only 19 per cent in 2014, compared to 23.3 per cent now. The most notable drop in proportion will be people between 15 and 44 years of age — the core working-age group. While they currently comprise 48.7 per cent of the population, they will represent only 40.9 per cent by 2014. At the same time, the number of people 45 years of age and older will increase substantially from 27.9 per cent to 39.8 per cent. The magnitude of this "aging" phenomenon will be affected by the age and family structure of immigrants to the province and the birth rates of the entire population.

"The scenario of children in their 60s and 70s caring for parents in their 90s and 100s will surely be commonplace."

*The Rainbow Report: Our Vision for Health
Premier's Commission on Future Health Care
for Albertans*

Overall, these patterns indicate that a lesser proportion of Albertans will be contributing to the wealth of the province, and to the support of fewer dependent children but a growing number of elderly people. This can be expected to affect our ability to pay health care delivery and other social program costs, including those associated with the environment.

Our consumptive society

The impact of our growing population on the environment is exacerbated by our individual and collective lifestyles. By and large, we are an affluent society. Worldwide studies suggest that affluent societies generate the greatest amount of waste and exert the heaviest demands on natural resources.

Albertans continue to lead the nation in per capita retail spending. An examination of personal spending reveals that almost 30 per cent of our earnings go toward non-essential items. Non-essentials are defined as recreation, education, cultural services, and personal goods and services. Personal goods and services consist of jewellery, watches, cosmetics, personal care, restaurants, hotels, financial and legal services, contributions to non-profit organizations, and other personal indulgences. Essentials are defined as food, shelter, clothing and transportation.

Albertans generate more than 2.0 million tonnes annually of municipal solid waste – specifically, industrial, residential, commercial and institutional waste. Between 1988 and 1992, it is estimated that waste generation declined by 14 per cent from 1.15 tonnes to 0.98 tonnes per person. The decline from 3.14 kilograms to 2.67 kilograms per person per day is generally attributed to changing attitudes and behaviours which are reflected in our increased recycling activities and different purchasing practices.

Based on 1991 data, the three major sources of solid waste were estimated at:

- Industrial, Commercial & Institutional 1,099,600 tonnes
- Residential 906,840 tonnes
- Construction/Demolition 742,000 tonnes

**COMPOSITION OF THE MUNICIPAL SOLID WASTE STREAM
ALBERTA, 1991***

TYPE	PERCENTAGE	TONNES (000S)
paper products & newsprint	32.0%	642.08
inerts/other	15.0%	300.97
food waste	12.0%	240.77
yard waste	10.00%	200.67
plastics	7.8%	156.50
glass	6.8%	136.44
ferrous metal	6.5%	130.42
wood	3.5%	70.22
rubber/leather	2.4%	48.15
textiles	2.1%	42.13
aluminum	1.4%	28.09
other metal	0.6%	12.03
TOTAL	100%	2,006.50

Source: *Our Forgotten Resource — The Common Sense Approach*
Environment Council of Alberta

* Excluding Construction/Demolition

According to *Our Forgotten Resource — The Common Sense Approach*, released by the Environment Council of Alberta in September 1994, "...paper and paperboard comprise...the largest single commodity in our landfills. As of 1991, [only] 28 per cent or 157,000 tonnes were being recovered from new purchases for recycling." Combined, food and yard wastes account for 22 per cent of garbage to landfills. The report quotes *The Economist* which noted that "poor countries throw away lots of vegetable matter.... The most striking change as countries become richer is in the quantity of discarded paper."

Our affluence is further evidenced by our indulgence in motor vehicles. There were 1,878,707 road motor vehicles registered in Alberta in 1992 — one of the greatest number per capita in Canada. This is of particular interest because of the impact of motorized vehicles on energy consumption and emissions of air pollution. More than 23 per cent of the energy consumed in Alberta is for transportation. Among major Canadian cities, Calgary and Edmonton average the highest carbon monoxide levels.

These examples are symptomatic of a larger problem. Too often, we do not give due consideration to the consequences of our individual actions. Yet, collectively, just as we have the potential to do harm to the environment, we have the opportunity to ensure that human and economic activities combine with the environment on a mutually supportive basis.

"...in reality, Alberta can make very little impact on the global stage. What the province can do is ensure sound development within its own jurisdiction using knowledge gained from the experiences of others."

Delphi summary
Praxis Inc.

PRIORITIES AND DIRECTIONS

The Future Environmental Directions for Alberta Task Force is not alone in its pursuit of priorities that will accommodate an effective shift to sustainable development as a fundamental practice. Numerous projects are underway nationally, provincially and internationally. Following the Earth Summit in Rio de Janeiro in 1992, the world's governments agreed to form the UN Commission on Sustainable Development. Subsequently, some 70 countries have begun charting a path to sustainable development. The priorities recommended for Alberta are specific to our circumstances and were developed independently, but they appear to be in accord with the directions being taken by many other forward-thinking jurisdictions.

The Alberta of the 21st Century will be operating in a different context. The need to remain competitive will be compelling. The global marketplace will be more tightly knit. Trade arrangements, closely linked to environmental performance, will expand along with the industrialization of developing countries. There will be a premium on cost-effectiveness and on the well-directed use of public and private money.

Within Alberta, government will likely continue its focus on core activities and providing a framework for prosperity. There will be more emphasis on individual and corporate environmental responsibility. With this empowerment will come a need for greater accountability among all segments of society.

It is in this context that the Future Environmental Directions for Alberta Task Force recommends the adoption — by all segments of Alberta society — of five major priorities that will ensure a sustainable future. They are complex and inter-related. Together with the 24 directions that will lead to their implementation, these priorities present both challenges and opportunities in the years ahead.



PRIORITY ONE

Make sustainable development a fundamental value in the way we govern and conduct our everyday lives.

"Attitudinal issues concerning human nature, values, and culture will likely pose the most difficult challenges for environmental protection over the long term."

World Resources Institute for the U.S. Environmental Protection Agency

We are the stewards of our future. To create a new path to that future, we must establish sustainable development as one of our fundamental values. The Concise Oxford Dictionary defines values as "...one's principles or standards, one's judgement of what is valuable or important in life". By their nature, values are profound and persisting motivators of individual decisions and actions — in contrast to opinions which can sometimes change quickly.

The environment and economy are both valued by the majority of Albertans.

However, the concept of sustainable development, which unites the environment and economy as mutually supporting values, is generally neither well understood nor widely supported. To make substantial progress toward sustainable development, we need to replace the current dominant view that environment and economy are in opposition and that, as a result, we must choose between the two.

Sustainable development should not be considered merely as a new form of economic growth. It is really the new context — a fundamental value — within which policies should be set and decisions should be made. We must change to a mindset that places more emphasis on qualitative development, rather than quantitative growth. We must abandon notions of growth for growth's sake, and evaluate projects, initiatives and policies on the basis of potential for long-term sustainability. This will provide us with a new way of judging the merits of human and industrial activities which impact on our natural environment, and assessing our progress toward sustainable development.

Environmental issues often take considerable time to emerge and even longer to effectively address. As a result, consistent action over a long time, not a limited effort based on short-term enthusiasm, is required. The best way to ensure future prosperity is for all segments of society to apply the principles of sustainable development with consistency, persistence and commitment. Government, corporations, non-governmental organizations and individual actions must integrate and reflect our economic, ecological and social values.

THE "GREENING" OF SOCIETY

Attitudes toward the environment have changed dramatically during the past two decades. For a long time, we didn't fully understand the overriding importance of the environment. It is now significantly valued and recognized as essential to our future prosperity. Awareness of the need for responsible behaviour which mitigates the potential for harm is evident in countless ways.

"Sustainable development is the key to making our environmental and economic needs complementary or supportive rather than conflicting. It provides a powerful context for thinking and action, stimulating the innovation needed to further environmental and economic goals at the same time. It calls for breaking away from an 'either/or' mentality."

Ken F. McCready, President and CEO
TransAlta Corporation

"The components of a proper decision include the science, economics, geopolitical and sociological aspects of the impacts."

Delphi Survey Participant

"Since public policy is guided by citizens, their concern is critical.

Additionally, the role of the individual consumer to influence the market is a power to be used."

Delphi Survey Participant

Indeed, the growth of the "green" movement has resulted in the formation of thousands of environmentally-focused organizations comprising millions of concerned citizens worldwide. Their activities at local, national and international levels have created awareness of environmental degradation, exposed irresponsible practices, and influenced change. Pressure to act with due regard for the environment has led, for example, to the emergence of an array of green consumer products and services; the introduction of user fees for the collection and disposal of waste; the development of clean and "clean-up" technology; and the promotion of corporate environmental responsibility through advertising.

More importantly, greater awareness of the need to protect the environment has resulted in changes to legislation, in more public consultation, and in a higher level of corporate consideration.

According to a recent Angus Reid poll, *Canadians and the Environment 1994*, an overwhelming percentage of Albertans are prepared to pay more in the interest of protecting the environment:

- 80 per cent would pay 15 cents more for a newspaper made from recycled paper, and 10 per cent more for farm produce grown completely organically; and
- 72 per cent say they would pay 10 per cent more for environmentally "green" grocery products.

Many Delphi survey respondents foresee the rise of environmentalism as a core value, with a more informed, concerned and involved public increasingly willing to make decisions, demand information and take responsibility for individual action.

Here in Alberta, non-governmental organizations whose primary focus is the environment have increased in number and influence since the late 1970s. For example, the Alberta Environmental Network is comprised of organizations and agencies "demonstrating sincere concern and action toward a healthier environment", and provides the most comprehensive source of information on related activities in this province. The Network includes almost 200 Alberta environmental non-government organizations, claiming upwards of 75,000 individual members, many of whom belong to more than one group. It can be assumed that considerably more Albertans are active in environmental issues and activities than are members of the Alberta Environmental Network. Most group and individual activity is focused on particular areas of environmental protection, while a limited number operate within a broader sustainable development framework.

The Task Force believes that public concern about the environment will be an increasingly important factor in the future, in large part because the public strongly links the state of the environment to health. A 1993 Enviro-nics poll found that 90 per cent of Canadians believe health has already been affected by the environment; 53 per cent felt their personal health has been affected by pollution; and 81 per cent conclude that pollution problems threaten the survival of the human race.

There has been an increase in asthma mortality and hospitalization in recent decades in Canada and other developed countries such as the United States, Sweden and Great Britain. Preliminary studies in Alberta have shown a higher incidence of asthma than in other parts of the country. While the cause of the increase and the high



"The government's program to promote healthy lifestyles, and the increasing expertise of professionals involved in risk assessment were two processes that were viewed positively."

Delphi summary
Praxis Inc.

"Comparative risk assessment holds promise as a tool of choice for assessing and ranking environmental risks, not only to human health, but to ecosystems and our quality of life."

Delphi Survey Participant

"In good times, we are concerned with the environment. In bad times, the economy takes precedence."

Delphi Survey Participant

"The best way to get society to understand where we are heading is education and awareness. And the best place to start is in our schools."

Delphi Workshop Participant

rates is not known, many members of the public assume it is linked to air quality. As well, some people relate other diseases, including multiple sclerosis and certain cancers, to environmental factors.

These perceived threats to the health of Albertans will contribute to strong public support for a clean environment — presenting both an opportunity and a challenge. The opportunity lies in the potential for positive, sustained action by Albertans. The challenge is to ensure that this action is in the most productive direction: toward sustainable development "ensuring a healthy environment, a healthy economy, and a high quality of life".

The Task Force received a strong message in Delphi workshops, however, that sustainable development is not well understood. In the youth survey, while support for basic components of sustainable development was good, familiarity with the term "sustainable development" was limited. Similarly, in the Angus Reid environmental poll, 39 per cent of Albertans admit to not knowing what "environmentally sustainable development" means. This is a concern because a clear, common understanding will be an essential precondition to implementation. Furthermore, the sustainable development perspective should become the basis for resolving conflicts between those who favour economic development and those who favour environmental protection. Unless the concept is widely understood and accepted, establishing a common ground for discussion will be difficult.

News reports frequently paint environmentalists as pitted against those favouring development in a win/lose relationship, adding to the premise that the environment and economy are separate, opposing factors. This is further borne out in recent omnibus polls which rank economic concerns higher than environmental concerns. For the most part, people may feel that in hard times the environment must take second place to such things as employment and job security. As long as the two are not intimately connected in most people's minds, this attitude is understandable.

Nonetheless, in the Angus Reid poll, which was dedicated solely to questions regarding the state of the environment, more than half of those surveyed said that the government should take action against pollution even if jobs are lost, and that factories which do not meet environmental regulations should be shut down. Albertans expressed the most concern over waste disposal, water pollution, air pollution and forestry/deforestation, in that order.

Delphi survey participants thought a change in environmental values and thinking would be desirable. They suggested multi-faceted thinking which incorporates scientific, economic and social factors, and a consultative and cooperative approach to problem-solving. When survey participants were asked how they would invest a million dollars to make the greatest progress toward a sustainable future, more than a third said they would earmark their funds for education. The majority of these people would invest in the education of both adults and children. Proposed educational content varied from lifestyle changes to water and soil conservation, but always focused on environmental protection.

Education programs which promote the Alberta Vision of Sustainable Development and foster the implementation of its elements are necessary at all levels. The working committee on education of the now operational Alberta Economic Development

Authority should discuss the merits of inclusion of sustainable development principles and management practices in relevant curricula throughout the system, from kindergarten to post-secondary classes. The endorsement of the Authority's committee would help facilitate greater collaboration among various government departments, institutions, associations and agencies in the provision of course materials.

Clearly, understanding and awareness affect individual decisions that are basic to the achievement of sustainable development. Many of the most important impacts on the environment can be attributed to the cumulative decisions and actions of individuals. These include buying cars based on their fuel consumption performance; opting for public transport or ride-sharing; and buying environmentally-friendly products with minimal packaging. It means supporting measures to reduce environmental degradation, such as "pay as you throw" fees for garbage collection based on volume; reusing and recycling materials; composting food and yard wastes; and conserving energy and water resources.

These individual values are reflected beyond our homes and personal lives. They influence our actions in the workplace and affect our decisions in the corporate, organizational and government world. Ultimately, it is *the people* within these structures who determine what will be done, and how it will be done.

The Task Force is convinced that by embracing sustainable development as a fundamental value, we will ensure our prosperity in the longer-term. However, attention will have to be paid to specific areas in order to implement the Alberta Vision of Sustainable Development.

"Sustainability presents humanity with an enormous challenge, one that we cannot ignore. Although it may lead us to question our beliefs and ways of living, it also represents a rare opportunity. It invites an exciting and vigorous re-evaluation of our social and economic institutions, priorities, decision-making processes and values."

Projet de société, Canadian Choices for Transition to Sustainability



THE WAY WE GOVERN

Direction 1:

Include the Alberta Sustainable Development Vision statement and/or its elements in relevant legislation.

In June 1992, the Alberta Legislature unanimously endorsed the vision statement and elements of sustainable development that were developed by the Alberta Round Table on Environment and Economy. Reference to this vision and/or its elements in relevant legislation would demonstrate that government is acting on, and committed to, that resolution of the Legislature.

Sustainable development is a broad government objective applicable to a number of departments and their missions, mandates, programs and policies. Inclusion of the Alberta Sustainable Development Vision as an objective in legislation would reinforce its importance and help ensure its achievement over the long term. The strength of the Vision and its elements is in their all-encompassing nature and flexible applications. Taken in whole or in part, they are intended to provide guidance to all segments of Alberta society. This easy adaptation for particular purposes offsets the concern by Delphi survey respondents that progress toward sustainable development would not be possible without a shared understanding of its meaning. The implications of sustainable development will vary with differing circumstances.

THE ALBERTA VISION OF SUSTAINABLE DEVELOPMENT

Alberta, a member of the global community is a leader in sustainable development, ensuring a healthy environment, a healthy economy, and a high quality of life in the present and the future.

This vision encompasses all of the following elements:

- **The quality of air, water, and land is assured.**

Environmentally sound use of air, water, and land safeguards essential life-support systems. There is continuous improvement in practices affecting their quality.

- **Alberta's biological diversity is preserved.**

Biogeographical areas, habitat, and wildlife are protected. Aesthetically attractive areas are set aside for recreational, cultural, and spiritual needs.

- **We live within Alberta's natural carrying capacity.**

Renewable resources are used in a sustainable manner. Non-renewable resources are used responsibly and contribute to the attainment of a sustainable future. Our values and consumption patterns recognize Alberta's true carrying capacity.

- **The economy is healthy.**

The economy is diversified, resilient, globally competitive, and environmentally responsible. Employment and other roles are meaningful, productive, creative, and rewarding.

- **Market forces and regulatory systems work for sustainable development.**

There are economic incentives to encourage environmentally responsible behaviour, with full-cost accounting for the life cycle of products. Where regulatory systems are required to shape the market, they foster sustainable development and choice.

- **Urban and rural communities offer a healthy environment for living.**

Human settlements are shaped by principles of sustainability, offering healthy work environments, usable open space, efficient transportation, and accessible natural areas. Work, residence, and leisure places are closely integrated.

- **Albertans are educated and informed about the economy and the environment.**

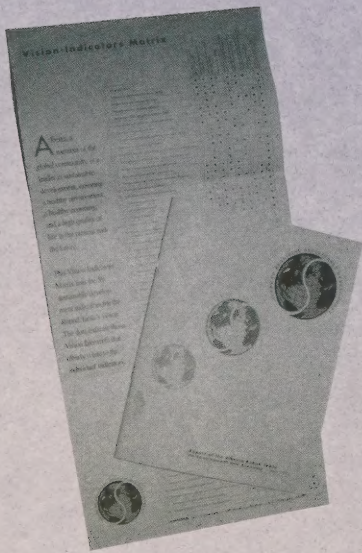
Education begins at an early age so that all citizens understand the issues and the elements of this vision. Everyone has access to the information necessary to exercise good judgement.

- **Albertans are responsible global citizens.**

We join with the global community in making decisions about economic and environmental issues. We exchange knowledge and technology with other nations. Our policies recognize the link between world population and sustainability. In making local decisions, we take into account global economic and environmental impacts.

- **Albertans are stewards of the environment and the economy.**

As individuals, we actively employ our understanding and knowledge to hold in trust, for future generations, both the environment and the economy.



The emphasis on sustainability in the *Alberta Environmental Protection and Enhancement Act* and the department of Environmental Protection's mission statement can serve as a model for other relevant legislation. As well, broader application would build on the trend toward incorporating sustainable development in legislation in other jurisdictions. For example, among its purposes, the *Canadian Environmental Assessment Act* includes:

- b. to encourage responsible authorities to take actions that promote sustainable development and thereby achieve or maintain a healthy environment and a healthy economy...

In addition, the federal *Department of Forestry Act* defines sustainable development and requires the Minister to "have regard to the integrated management and sustainable development of Canada's forest resources..." in exercising his powers.

There is reference to sustainability in provincial legislation that has recently undergone extensive public review — specifically, the *Alberta Planning Act* which became part of the new *Municipal Government Act* on January 1, 1995. This is significant given the enhanced municipal responsibility for subdivision approval and development control under the new Act. The stated purpose of the legislation and the associated regulations is to provide mechanisms to:

- a. facilitate the orderly, economical, beneficial and sustainable patterns of human settlement, and
- b. maintain and improve the quality, health and safety of the physical environment with which patterns of human settlement occur in Alberta.

In keeping with this statement of purpose, the Task Force encourages more municipalities to adopt the Alberta Vision of Sustainable Development and to apply the principles to their decision-making process. This is all the more important now with the phasing-out of regional planning commissions, and the increased environmental responsibilities assigned to municipalities under the new *Municipal Government Act*. Both the Alberta Urban Municipalities Association and the Alberta Association of Municipal Districts and Counties have encouraged their members to endorse the Vision. Currently, about half of the 378 municipalities have formally done so since 1992.

Furthermore, the members of the Task Force strongly recommend the retention of the aspects of sustainability contained in the draft *Water Conservation and Management Act*, which is currently under review. In the section on purpose, the discussion draft refers to:

2. The purpose of the Act is to support and promote the conservation [which includes preservation and protection] and management of water, including the wise allocation and use of water while recognizing
 - (a) the need to manage and conserve water resources to sustain our environment to ensure a healthy environment and economy, and a high quality of life in the present and the future....

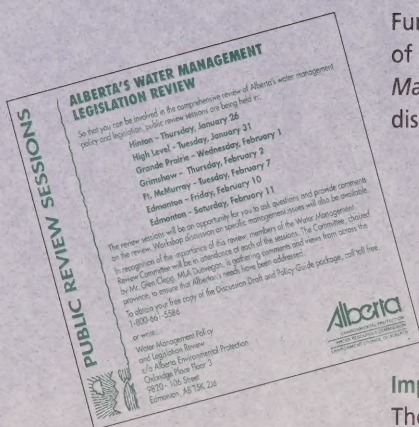
Implementation Directions

The Alberta Sustainable Development Vision statement and/or appropriate elements should be incorporated in the preamble or purpose sections of relevant Alberta legislation, including Acts governing various professions and occupations. This will require identifying and reviewing key economic, environmental and social legislation and associated regulations; and establishing a mechanism to include these principles in statutes. This could be accommodated in three ways:

- on a staged basis, as relevant legislation is identified;
- as new legislation is being developed; or
- at the time that other amendments are being made to legislation.

Other Alberta legislation notes the two goals of providing for economic development and environment conservation, but does not refer to sustainable development:

- the *Hydro and Electric Energy Act*;
- the *Oil Sands Technology and Research Authority Act*; and
- the *Pipeline Act*.



"The long-term implications are that we will likely lurch from one sustainable development issue to another unless some long-term framework and agreements are put in place."

Delphi Survey Participant

*"When an objective is in legislation,
it really begins to mean something."*

Donna Tingley, Task Force Member



*"The security of health, wellness,
economic conditions, natural
environment quality and resource
availability will all play important
parts in our decisions. If any one of
these elements is used solely to make
decisions, we will not be acting
toward sustainability."*

Delphi Survey Participant

These and other pieces of legislation could be strengthened with explicit references to "sustainable development", which encompasses economic development and environment conservation but integrates them as a single value. The real significance of this single value is inherent in the Vision and its elements.

To supplement provincial legislation, relevant professional, occupational and trade associations should include sustainable development principles in their statements of purpose and codes of practice. Among those which already incorporate them are such diverse organizations as the Alberta Region of the Canadian Chemical Producers' Association; the Fort McMurray Fur Trappers' Association; the Alberta Federation of Labour; the Alberta Registered Professional Foresters' Association; and numerous agricultural associations. It is also encouraging to learn that professional associations of engineers, architects, land-use planners, lawyers, accountants and health practitioners are working toward promoting environmental responsibility and sustainable development. For example:

- the Canadian Institute of Planners is involved in the Healthy Communities movement;
- the Canadian Bar Association has completed a study on law reform choices to support sustainable development; and
- the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA) has developed detailed guidelines related to environmental practices for implementation by such professional groups as the Consulting Engineers of Alberta.

Implementation Responsibility

Alberta government departments — led by Environmental Protection, Economic Development and Tourism, and others represented on the Sustainable Development Coordinating Council — should work in cooperation with the Legislative Counsel division of Alberta Justice to ensure that relevant legislation and regulations effectively incorporate sustainable development practices.

With respect to statements of purpose, codes of practice, and legislation, where applicable, the members and governing boards of various associations should endorse commitment to sustainable development principles.

The Alberta Urban Municipalities Association and the Alberta Association of Municipal Districts and Counties — supported by Municipal Affairs and the Sustainable Development Coordinating Council — should continue to encourage widespread adoption of the Alberta Sustainable Development Vision.

Direction 2:

Strengthen internal Alberta government sustainable development decision-making.

Decisions are made throughout the government that affect our environment and economy. They are made by Executive Council, individual ministers, standing policy committees, departments, boards, agencies and officials. However, more than 50 per cent of Delphi survey respondents pointed out that improvements must be made in the decision-making process in order to achieve sustainable development.

"There will be more conflicts in trying to implement the objective at the operational level, since senior levels of government and industry do not seem to understand that the concept requires real changes in how things are done."

Delphi Survey Participant

Natural Resources Conservation Board Act

Purpose of the Act:

"...to provide for an impartial process to review projects that will or may affect the natural resources of Alberta in order to determine whether, in the Board's opinion, the projects are in the public interest, having regard to the social and economic effects of the projects and the effect of the projects on the environment."

Energy Resources Conservation Act

Consideration of the public interest: "...in respect of a proposed energy resources project, [the Board] shall, in addition to any other matters it may or must consider in conducting the hearing, inquiry or investigation, give consideration to whether the project is in the public interest, having regard to the social and economic effects of the project and the effects of the project on the environment."

"We must look at both the environmental consequences of economic decisions, and the economic consequences of environmental decisions if sustainable development is to become a reality."

Delphi Survey Participant

There is a need to more consciously and consistently merge economic and environmental decision-making. This will turn the environment into a mainstream economic issue, equal to other big-ticket items like job creation, regional development, royalty revenue generation and competitiveness. More and more, we have seen an end to simply treating the environmental side-effects of economic growth through pollution control programs. Policies and mechanisms have been developed which require the identification and prevention of potential environmental problems through pre-emptive environmental design. Reacting after the fact has proven too costly both economically and politically in many cases.

Despite various safeguards, there appears to be a lack of consistency in their application and insufficient consideration of such things as the longer-term implications of resource depletion, or public reaction to potential development in ecologically — or politically — sensitive areas.

The Natural Resources Conservation Board's — NRCB — purpose is to determine whether projects it reviews are in the public interest, having regard to environmental, social and economic values. Its decisions also are guided by the principles of sustainable development. The Alberta Energy and Utilities Board — AEUB — administers the *Energy Resources Conservation Act* which has a strong mandate to ensure energy development based on a parallel public interest objective.

The government has also identified 22 key performance measures to address its vision of "a prosperous Alberta" in its overall business plan, entitled *A Better Way*. These are intended to assist in some aspects of the preferred decision-making process. *Measuring Up*, released for discussion in December 1994, outlines these measures, including:

- the resource wealth index to measure the development and use of natural resources against the need to ensure their long-term sustainability; and
- air, water and land quality indicators to measure changes in quality and reflect our ability to maintain a clean and sustainable environment.

Specific implications of these performance measures are addressed in the discussion of other priorities and directions.

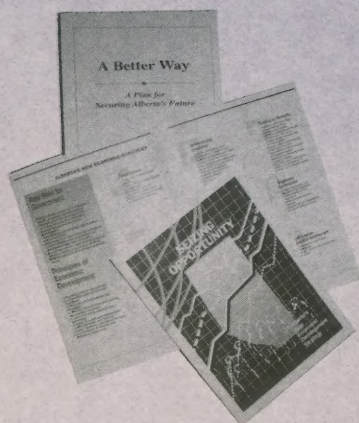
Throughout the Alberta government, however, decision-making processes require strengthening to ensure that the sustainable development implications are always taken into account. Elected officials who serve on the Standing Policy Committee on Natural Resources and Sustainable Development, and senior department officials on the Sustainable Development Coordinating Council should be particularly sensitive to these requirements.

Implementation Directions

Executive Council, Standing Policy Committees and the Sustainable Development Coordinating Council should require the inclusion of information on sustainable development implications in matters brought before them for decision. This would ensure:

- that government decision-makers receive full data and analysis on the environmental, economic and social consequences of decisions; and
- that sustainable development implications are taken into account before decisions are made.

"[Failure to bridge]... the understanding gap between economics and the environment will continue to thwart sustainable development decision-making for years to come."
Delphi Survey Participant



As one means of accomplishing this, the forms for Ministerial Reports to Standing Policy Committees, Ministerial Requests to Executive Council, and discussion items brought forward from senior officials should be required to provide detailed information on the sustainable development implications.

Some departments, such as Alberta Environmental Protection and Alberta Economic Development and Tourism, have included sustainable development and sustainability principles in their individual mission statements. The development and updates of three-year departmental business plans should reinforce government commitment to sustainability by outlining specific actions that will be undertaken to ensure achievement.

The Alberta Energy and Utilities Board is also responsible for decision-making pursuant to the *Public Utilities Board Act*, which currently does not incorporate a sustainable development objective or public interest test. An amendment of this Act, to at least bring it into line with ERCB and NRCB legislation, would be appropriate.

Implications for sustainable development should be considered throughout the budget process. Sustainable development measurements, such as those put forward in *Measuring Up* or proposed by the Alberta Round Table on Environment and Economy, could be used to help determine those implications.

Implementation Responsibility

Executive Council and Standing Policy Committees should require specific detail on sustainable development implications in the formulation of decisions. Alberta Treasury, as the department responsible for the decision documents, should redesign Ministerial Report and Request forms to include a section on "Sustainable Development Implications"; and use sustainable development measurements in budget preparation.

All the departments and boards that are members of the Sustainable Development Co-ordinating Council should incorporate sustainable development strategies in their respective mission statements and business plans.

THE WAY WE CONDUCT OUR EVERYDAY LIVES

Direction 3:

Minimize or avoid discharges which pollute our air, water and land.

Any and all human and industrial activity could result in discharges that may have negative impacts on the quality of our environment. Atmospheric emissions affect air quality; effluents affect water quality; chemical applications affect soil quality. Any alteration of the environment can have unanticipated consequences for people as well as for other parts of our ecosystems.

Protecting and improving the quality of our air, water and land will require a change of mind-set: *do not limit discharge levels to the amount the environment appears able to assimilate or regulations allow; instead, concentrate efforts and technology on minimizing them even further, or preventing them altogether.* This goal reflects movement away from a view of humans as distinct from the environment and able to manipulate it at will. It leads us toward the growing recognition that human beings are part of the wider pattern of life and the environment, and dependent upon it.

"Tighter environmental rules are spurring advances in control technologies. Meanwhile, some long-established treatment approaches are becoming more attractive as regulators prod industry down the path to 'zero discharge'."
Industry Week, April 1994

Canadian Council of Ministers of the Environment Actions To Advance Pollution Prevention

- Make pollution prevention the priority.
- Develop and implement government action plans for pollution prevention, and encourage the development of action plans by other sectors.
- Review legislation, regulations and policy as appropriate, and harmonize approaches to pollution prevention.
- Test and implement economic instruments that will help achieve pollution prevention.
- Educate the public about pollution prevention, and train relevant groups in the technical aspects of pollution prevention.
- Recognize and promote successful pollution prevention initiatives.
- Develop practical tools, such as guidelines and codes of practice, to enable people to deliver pollution prevention at an operational level.

This goal also has a precautionary dimension. Long-term cumulative and combined effects of many contaminants are neither well known nor scientifically proven. Minimizing or eliminating pollution serves as insurance against potentially serious consequences, and makes additional good sense in this context.

The high costs of clean-up and remediation compared to prevention argue for this approach. For example, in his latest annual report, Alberta's Auditor General urged government to begin setting aside funds to cover the costs of environmental restoration at a number of sites. Costs could run into the tens of millions of dollars for cleaning up at least five abandoned landfills and creosote seepage into the Bow River, restoring soil contaminated by underground petroleum storage tanks, and reclaiming gravel pits.

The Canadian Council of Ministers of the Environment, recognizing the need to minimize and avoid the creation of pollutants and wastes, has developed a framework to assist all jurisdictions in furthering pollution prevention. The Council believes governments have a responsibility to provide leadership and support in changing the emphasis toward anticipating and preventing pollution, instead of reacting to it after the fact.

A cleaner environment reduces risks to health, and protects current and future generations from dealing with costly remedial programs. Over and above these obvious benefits, setting a goal of minimizing or avoiding discharges encourages technological advancements.

"Eco-efficient" practices foster the production of useful goods and services while continuously reducing resource consumption and pollution. Closely linked to this concept of eco-efficiency, cost-effective opportunities to prevent or eliminate discharges can be — and have been — identified that better many of the standards now set for various contaminants. Pursuit of such achievement triggers market forces which lead to the development of innovative and responsive technology. Accordingly, the Geneva-based Business Council for Sustainable Development, which promotes eco-efficiency, suggests that operating on the basis of "...increasing the visibility of all costs associated with waste and pollution will encourage business to design products and services that both add value for consumers and reduce their impacts on the environment".

Concurrent with building on the commitment of the Canadian Council of Ministers of the Environment to pollution prevention, making substantial progress toward this goal would place Alberta in a stronger position internationally. As members of the global community and stewards of our common environment, we should ensure that our environmental practices are above reproach.

By and large, industry is supportive of continuous improvement to reduce emissions of substances whose fate and effects in the environment are uncertain or for substances which tend to accumulate in the environment or in organisms. However, there are other substances whose fate is well known and for which costly attempts at elimination may not be reasonable or practical. Substances like most conventional organics in waste water, for example, can readily be converted by chemical or biological processes to innocuous by-products. Risk and cost-benefit analyses must be used to ensure better decision-making and the development of well-directed strategies.

"Between 1988 and 1991, pollution abatement control as a proportion of total capital expenditure increased by almost five times in the paper and allied products industry, passing from 2.9 per cent to 14.6 per cent."

Projet de société, Canadian Choices for Transitions to Sustainability

"Due to Syncrude's leadership in environmental and loss management performance, the company was chosen by Det Norte Veritas/International Loss Control Institute as the sole industry partner in the development of the International Environmental Rating System."

A Canadian Success Story, Syncrude Annual Report 1993



Implementation Directions

This action applies to all sectors of Alberta society. Individual Albertans can make a difference through responsible and efficient use of energy resources and water supplies, as well as concerted efforts to reduce waste generation.

At the industry level, on-going research and development are vital to pollution prevention. Numerous innovative projects are underway among various industry sectors. For example, 25 years ago, the suggestion of a closed-loop pulping facility would not have been taken seriously. Yet, mills in Europe, Ontario and Saskatchewan are manufacturing pulp without effluent discharge into water courses, and Canadian design engineers are attempting to expand the technology to paper mill processes.

As well, Syncrude Canada Ltd. has spent hundreds of millions of dollars on dealing with plant odours, emissions and wastes from its massive oilsands operation in the Fort McMurray/Fort MacKay area. Through new technology and innovation, Syncrude has increased plant efficiency and improved environmental performance. Supplementing its fluid coking process with hydrocracking has resulted in a dramatic 35-per cent drop, since 1988, in sulphur dioxide emissions per barrel of synthetic crude oil. While Syncrude's emissions are well below licensed limits, improvements continue to be sought in this and other areas. For example, research has led to a patented method of recovering naphtha which reduces volatile liquid discharges into the tailings settling basin and fugitive hydrocarbon emissions into the atmosphere.

TransAlta Corporation has developed a policy statement which outlines its commitment to the environment and sustainable development, including "...meeting or surpassing all environmental standards, and continuously improving our environmental performance". To this end, the utility company has introduced eco-efficiency into its operations, and is actively pursuing improved efficiencies targeted at reducing greenhouse gas emissions resulting from the generation, transmission and distribution of electricity. New operating practices and equipment have resulted in TransAlta selling more electricity with lower carbon equivalent emissions to the atmosphere. In various projects and partnerships, the company is also exploring alternatives to coal as the feedstock at its power generating plants, and cogeneration to capture significant benefits from waste heat.

Rotting garbage creates methane gas which contributes to the greenhouse effect. Since 1992, Environmental Technologies Inc. has sunk 100 wells into the Cloverbar Landfill, and extracts 82 cubic metres of methane a day. It is piped to the nearby Edmonton Power generating station where it is mixed with natural gas for boiler fuel. The methane — 27 times more potent as a greenhouse gas than carbon dioxide — would otherwise escape into the atmosphere.

Much of Alberta's natural gas contains hydrogen sulphide which must be removed before the gas can be sold. The main strategy by industry is to recover the sulphur as the gas is processed. The efficiency rate of recovery is at an all-time high of 98.6 per cent. Not only have total emissions per unit of gas produced dropped to about one-quarter of the 1973 level, but daily emissions are down from 671 tonnes per day to 241 tonnes. The recovered sulphur is sold for industrial uses. Export sales of 4.9 million tonnes to 20 countries around the world totalled \$347 million in 1992.

"When we were licensed in 1967, the environmental regulations covering sulphur dioxide emissions were not so stringent. Today, we totally agree with the need for more closed-loop engineering that allows industry to take care of its by-products in an environmentally friendly way."

Dee Parkinson,
Executive Vice-president, Suncor Inc.

"Public concern about environmental threats to health was seen as substantial, unfocused and bound to increase since health is a personal issue."

Delphi summary
Praxis Inc.

"Albertans need to address scientifically-proven problems rather than media-touted public concerns."

Delphi summary
Praxis Inc.

Alberta Environmental Protection continually emphasizes the minimization or elimination of pollutants from industrial activities. The department encourages the efforts of corporations that operate within exacting standards and often exceed legislated requirements through technological advancements.

Implementation Responsibility

Industry associations and individual businesses, the research community, umbrella environmental organizations and their members, municipalities, and Alberta Environmental Protection should cooperate in the identification of specific, viable prevention and reduction strategies.

Direction 4:

Expand the application of the environmental precautionary approach.

The precautionary principle, applied to the environment, is gaining increasing acceptance and has appeared in various forms in numerous international treaties and declarations. The December 1994 discussion draft of the Environmental Management Framework Agreement, being developed to rationalize federal and provincial environmental activities, included the principle:

The recognition that where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for failing to implement appropriate environmental measures.

Sustainable development priorities and actions should be based on the best information available, on sound science, and on consideration of costs and risks. However, where threats to the environment or human health may be serious, we cannot afford to postpone reasonable, preventive action because of scientific uncertainty. For some issues, the lack of scientific proof of harm has been used to justify lack of action.

The Government of Alberta has endorsed the precautionary approach which was recommended by the Clean Air Strategic Alliance for Alberta's climate change strategy. This precautionary approach includes "no regrets" actions, defined as those that make good sense in their own right. That is, "...actions that reduce overall costs, are cost free or are considered a 'good investment' for purposes of social, economic, and environmental objectives unrelated to climate change..."

Preferred industry practice is to apply a reasonable degree of science along with risk assessment and management techniques, including cost-benefit analysis. Industry is concerned when the application of the precautionary principle involves large costs that may ultimately prove unjustified.

Implementation Directions

To avoid excessive measures based solely on the properties of a substance and not on actual environmental effects, decisions to apply the precautionary approach should incorporate consideration of the risk posed, as well as an understanding of the economic implications. The emphasis should be on reasonable actions.

Areas which could be considered for application of the precautionary approach include the management of natural resources, the setting of emission/discharge standards for new and potentially harmful industrial pollutants, and the management of emerging environmental hazards to human health.

Implementation Responsibility

Alberta Environmental Protection should work in cooperation with relevant government departments and industry associations to ensure application of the precautionary approach where it is warranted.

Direction 5:

Strengthen post-secondary sustainable development education.

In order to ensure our prosperity in the future, sustainable development principles must be incorporated in education and training programs provided at the post-secondary level. The Vision and its elements have particular relevance for many professions, including agriculturalists, foresters, engineers, planners, architects, economists, lawyers, accountants and educators. In addition, sustainable development impacts the activities of related trades and occupations. Knowledge and application of the concept and principles would enable Alberta's workforce to put them into practice and make a substantial contribution to a sustainable future through their work. Moreover, there are broad-ranging advantages — locally, nationally and internationally — of doing business in a manner conducive to sustainability.

A number of Alberta post-secondary institutions currently are involved in aspects of environmental studies at the certificate, diploma and degree levels which contribute in various ways to sustainable development. However, too few environmental programs integrate rigorous economic components which are essential to sustainable development management. For the same reason, economic programs should include environmental considerations. There is a need to ensure that the principles of sustainability are applied more widely in post-secondary education programs beyond those with a traditional environmental thrust.

Implementation Directions

To ensure widespread understanding of sustainable development principles and practices, the concept must be incorporated in the core curricula for professionals, technical support personnel and apprentice tradespeople. At a minimum, this will require integrating studies which focus on the protection and enhancement of the environment with those which focus on economic development, resource exploitation and various management practices.

Implementation Responsibility

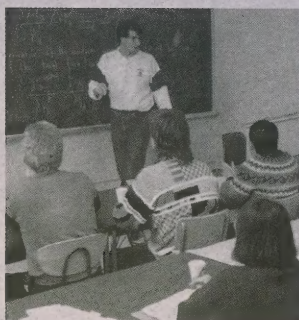
Program designers at Alberta's universities, colleges and technical institutions should work with Alberta Advanced Education and Career Development. As necessary, professional associations and occupational advisory committees should be involved.

Direction 6:

Expand workplace sustainable development education.

To make greater progress toward a sustainable future, workplace environmental education is becoming increasingly important to corporations and governments. Through employee training programs, supported by company policies, emphasis must be placed on the individual's responsibility to adhere to clearly-defined environmental practices and procedures.

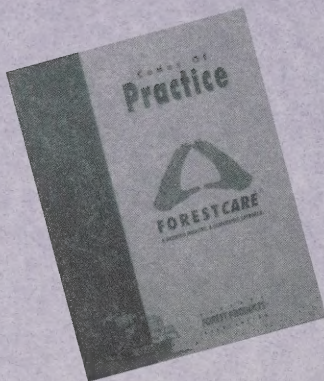
Training programs which promote environmentally sustainable actions and decisions can, in some cases, result in cost savings through more resource-efficient



"Economic restructuring, technology and global competitiveness are changing the knowledge and skill requirements of Alberta's economy."

*New Directions for Adult Learning in Alberta
Advanced Education and Career Development*

workplace operations. The types of courses depend on the nature of the operations, but most include waste management, site remediation, energy efficiency, environmental and sustainable development awareness, cost-benefit analysis, environmental health and safety, and regulatory matters. In addition, some companies and institutions offer special sessions to familiarize people with legislation such as the *Alberta Environmental Protection and Enhancement Act*, and international treaties such as the North American Free Trade Agreement, and the Conventions on Climate Change and Biodiversity. Both the University of Calgary and Mount Royal College provide courses and seminars/workshops on environmental regulations and management. As well, the Environmental Services Association of Alberta is committed to providing environmental professional development training in cooperation with the University of Alberta.



Many large, resource-based companies — oil, gas and forestry — have developed extensive training programs to manage their environmental objectives and decision-making processes more effectively. For example, environmental management education is compulsory for all Syncrude employees — some 4,000 people, including the Chairman and CEO. TransAlta Corporation specifically developed an Environmental Citizenship Initiative for all its employees to facilitate integration of sustainable development within its decision-making and operational practices. Industry associations have also developed comprehensive programs. For example, *Forest Care* operating guidelines for members of the Alberta Forest Products Association include the appointment of company coordinators who attend workshops, develop and communicate plans of action to ensure compliance with codes of practice, and ensure implementation by employees and management. (See Appendix 7.)

Many corporations have reported enthusiastic response among employees for sustainable development and environmental training programs. Reasons vary but most employees are motivated by their personal concerns for the environment, the knowledge that they can contribute to improved corporate operations, and the understanding that the lessons learned in the workplace could effectively be applied to their personal lives.

Implementation Directions

In government and the private sector, workplace employee education programs should focus on the economic and environmental benefits of sustainable development and performance. The principles are ideally applied to activities on the job, in the community and at home.

Professional and industry associations, in cooperation with post-secondary institutions, should offer workshops and seminars on sustainable development practices to members.

Implementation Responsibility

Corporations, industry associations and government departments should develop programs and courses in cooperation with Environmental Protection, post-secondary institutions, environmental education associations, and professional associations.

"My experience in leading this effort has persuaded me that the Sustainable Development Plan of a corporation can become a rallying force for the people of the corporation."

Jack MacLeod,
former CEO, Shell Canada

Direction 7:

Make sustainable development a formal part of the Kindergarten to Grade 12 curriculum, and ensure necessary teacher training and support.

"Sustainable development is not so much a program, but more a way of life."

Bob Page, Keynote Address
Founding Meeting, Alberta Round Table on
Environment and Economy,
June 1990

The achievement of sustainable development is dependent on changes in our attitudes and behaviours. Alberta youth, in particular, need to be taught sustainable development as a fundamental value, so the principles become a way of life. We are approaching the 21st Century with two generations whose lives have been filled with information on why environmentally responsible behaviour is critical to their futures. Yet, in the Task Force survey of 12 Alberta high schools, only 45 per cent of the students had heard the term "sustainable development".

The school systems are ideal mechanisms to further the understanding of the concept. Alberta students should graduate from high school with the knowledge, skills and attitudes that will enable them to understand the interdependence of the environment and the economy, and how this will affect them in their daily lives and the way they will do business. Such "sustainable development literacy" will enable them to make informed choices. There was strong support among Delphi survey respondents for the need to integrate environmental education, economics, science and the impact of consumption patterns.

Teacher training and specifically-designed support materials are essential to the successful incorporation of sustainable development into Kindergarten to Grade 12 courses of study. Teachers need to have a good understanding of the concepts and principles so they can effectively communicate them to students.

Numerous national and provincial groups and agencies have been promoting the expansion of sustainable development. The National Round Table on the Environment and the Economy, working with *ParticipACTION*, plans to launch a *SustainABILITY* campaign in support of its education program. Among the specific aims of the social marketing campaign are:

- creating broad public awareness of sustainable development, its advantages, and the need to redefine our society to one that is environmentally sustainable; and
- providing tools and methods, at the community level, to foster sustainable development.

The Alberta Round Table on Environment and Economy recommended the development of course materials for use at all grade levels. Several organizations are involved in individual projects, but there is a need for efforts to be coordinated to ensure a balanced and all-inclusive program.

Implementation Directions

As new science, environmental and social studies curricula are developed or current curricula are modified for use in elementary and secondary schools, sustainable development should be incorporated as a formal component.

In addition, this concept should be integrated into the teaching of other areas of the curriculum such as business and lifestyle courses. Through an interdisciplinary approach, students can learn about the wisdom of incorporating economic, environmental and social implications in decision-making.

"I was shocked to hear that my children were learning that it's a crime to cut down trees...[under the guise of environmental education]."

Delphi Survey Participant



To facilitate this learning process, teachers should take advantage of in-service training and resource materials, such as those provided by FEESA, An Environmental Education Society, and the Learning for a Sustainable Future Program, or the summer institutes offered by the Society, Environment and Energy Development Studies (SEEDS) Foundation.

Alberta Education and individual school districts should coordinate the availability of existing resource materials that will be useful to teachers. Materials should be appropriate and relevant to Alberta circumstances, and also support global sustainable development practices. Sources include the Global Education Program, and the Canadian Environmental Education Catalogue compiled by the Pembina Institute for Appropriate Development, which can be accessed through the Schoolnet Computer Network.

To strengthen the cause of sustainable development education, a network should be established with representation from Alberta Teachers' Association specialty councils, FEESA, SEEDS, the Pembina Institute, and certain private and public sector organizations. Given the number of professional and industry organizations now committed to the promotion of the concepts and principles, annual teachers' conferences are an ideal forum for attracting dynamic speakers who can capture the interest of attendees.

Furthermore, there is a high level of commitment among corporations, many of which provide financial support to provincial and national organizations dedicated to the promotion of sustainable development. Private sector support could be sought to help off-set costs of developing and producing new support materials.

Implementation Responsibility

Alberta Education should work in cooperation with Alberta Environmental Protection, the Alberta Teachers' Association, and environmental education associations to determine the appropriateness of existing resource materials, and in the development of new course materials and information.

Alberta Education and Alberta Advanced Education and Career Development should collaborate with Alberta Environmental Protection, the faculties of Education, the Alberta Teachers' Association, environmental education associations, the private sector and professional associations in the provision of teacher training and resource materials.



"Can the system deliver the answers to the children? Environmental education must go beyond the classrooms."

Delphi Workshop Participant





PRIORITY TWO

Implement sustainable resource management practices to protect our air, water and land.

"...I'll be working very closely with the Minister of Environmental Protection, and he'll be working very closely with me and other ministers as well, to make sure that whatever is done in this province in terms of creating new jobs and new economic opportunities will not be done at the expense of the environment... indeed, we will achieve sustainable development."

The Honourable Ralph Klein, Premier of Alberta, October 24, 1994

The issues surrounding the protection of the quality of our air, water and land are as big as the world itself. As members of the global community, we have an obligation to use these resources wisely and sustainably. There is heightened awareness among governments and industry that measures must be taken to address negative environmental trends. Worldwide strategies are being developed which focus on how to:

- protect our fragile ecosystems;
- restore those ecosystems which have suffered degradation;
- develop and integrate land-use plans to accommodate the needs and priorities of as many users as possible;
- eliminate exposure to toxic substances which can affect the health of all living things; and
- ensure that the environment is not treated separately from the economic agenda.

As discussed in the introduction to Section 3, burgeoning world population and consumption are challenging the capacity of developed and developing countries to meet their needs for food and energy. Currently, about one-quarter of the population uses three-quarters of the world's arable land and biological and mineral reserves. As emerging economies gain sufficient wealth and purchasing power, consumption patterns will change and increase. Even greater pressures will be placed on agricultural, energy and forestry resources. Potable water and arable land will become precious commodities.

Because Alberta, like most of Canada, has structured its economy around its abundant natural resources, we will feel the pressure of rising international demand. This will be facilitated by broadening trade agreements which will increase our ability to sell our resource-based products as a base for our future prosperity. The Task Force believes, however, that this growing demand for our resources will present Alberta with some of the most critical challenges it will face in the next two decades.

The temptation to exploit our resources unsustainably to achieve short-term profit will intensify unless sustainable development policies and practices are firmly entrenched. The Task Force is concerned that increased pressure on resources could lead to increased conflict among competing resource users, and between environmental and economic interests.

This concern underscores the belief that proper management is essential to the

"There's no question about it. With proper management, our natural resources can continue to be the foundation of our long-term prosperity. But we're facing a number of cross-cutting issues that require resolution."

David Stuart, Task Force Member

long-term strength of our economy. That is precisely why the Task Force has concluded that implementing sustainable resource management practices must be a priority for this province.

AIR QUALITY MANAGEMENT

Albertans recognize the need to maintain air quality — in their own best interests and as global citizens. There is growing concern about the environmental impacts of air emissions, particularly with respect to climate change, the thinning of the ozone layer, and urban air quality.



The very nature of our economy — primarily developing energy supplies for export outside the province — causes Alberta to produce 20 per cent of the carbon dioxide and nitrous oxide, and 15 per cent of the sulphur dioxide generated in Canada. Canada, in turn, produces about 2 per cent of the world's greenhouse gases, thought by many researchers to contribute to climate change. Carbon dioxide and methane are among the principle greenhouse gases.

Climate affects almost every aspect of human life — health, population location, food production, water supply, energy needs, infrastructure and lifestyle. As a result, changing weather patterns can have significant consequences. The question of global warming — and whether this is a temporary or long-term phenomenon — has become a matter of considerable debate. There are differing views, as well, on the contribution emissions from human activities are making to recent temperature changes.

As a precaution, and in response to wide-spread concerns, international commitments have been made to reduce greenhouse gas emissions. Canada, as one of the more significant per capita contributors to atmospheric deterioration, is working with the provinces on a national Comprehensive Air Quality Framework. This initiative, jointly undertaken by environment and energy ministers, deals with a range of air issues including climate change, urban smog and acid rain. Within the framework, federal and provincial jurisdictions have developed a strategy to work toward meeting Canada's commitment to stabilize greenhouse gas emissions at 1990 levels by the year 2000.

"In the course of 1987, the company used 1,069 tons of CFC-113 and 227 tons of methyl chloroform. We have now eliminated the use of both these ozone-depleting substances."

Elizabeth Stikeman Rose
Assistant Vice-president, Northern Telecom

One of the success stories of mobilizing the international community to action is the movement to reduce the production and use of chlorofluorocarbons (CFCs) — the chemical family that includes refrigerants, aerosol propellants, the bubbles in foam cushions, insulation, polystyrene plastic containers and packaging. These were once believed to be environmentally safe. Now, however, the link between CFCs, halons and other substances being released into the atmosphere and the thinning of the ozone layer is well-established. Global production of CFCs has decreased 60 per cent since 1988. This is a direct result of the commitment of more than 100 countries to the Montreal Protocol, pledging to reduce CFC output from 1986 levels by 50 per cent by 1999. This target has been accelerated to 100 per cent by 1996.

Air quality management in Alberta has grown into private-sector investment estimated at \$4 to \$5 billion. Monitoring costs for industry alone are estimated as high as \$80 million annually.

The province maintains continuous air quality monitoring in five major industrial regions which is complemented by intermittent and static monitoring stations throughout Alberta. Evaluation of the five main air pollutants — sulphur dioxide, carbon monoxide, nitrogen dioxide, ozone and suspended particulates — indicated

"Seventeen residents of west Central Alberta, including environmentalists, farmers and industry managers, are studying the idea of setting up a clean air zone where pollution levels will be monitored. ...There are seven gas plants and numerous other industries including sawmills in the area."

Red Deer Advocate, November 9, 1994

"good" air quality at least 85 per cent of the time in 1992. A significant decrease in annual average concentration of carbon monoxide and suspended particulates has been observed at most Alberta monitoring stations.

The Government of Alberta spearheaded the Clean Air Strategic Alliance, a multi-stakeholder process involving private and public sector representatives, to ensure that:

- air quality issues are identified;
- specific problems are prioritized;
- resources are allocated and coordinated;
- action plans are developed; and
- results are evaluated.

The Alliance will be responsible for developing Alberta's response to national and international air quality issues such as carbon emissions and climate change. It also has a mandate to address urban air quality, and is involved in a number of initiatives including sulphur dioxide management, air toxics and vehicle emission testing.

URBAN AIR QUALITY FOR SELECTED POLLUTANTS, 1987 – 1991
5-YEAR COMPOSITE AVERAGE — RANK SHOWN IN BRACKETS

LOCATION	Sulphur dioxide (annual parts/billion)	Carbon monoxide (8 hour parts/million)	Nitrogen dioxide (annual parts/billion)	Ozone (1 hour parts/billion)	Suspended particulates (annual micrograms per m ³)
Halifax	9.0 (2)	2.8 (5)	19.3 (8)	67.8 (5)	33.0 (10)
Québec City	3.6 (7)	2.4 (8)	23.6 (6)	68.0 (4)	32.0 (11)
Montreal	5.8 (3)	2.6 (7)	26.8 (2)	81.6 (3)	47.6 (5)
Ottawa	3.8 (6)	2.7 (6)	25.5 (4)	67.8 (5)	39.7 (7)
Toronto	4.8 (5)	3.3 (4)	26.5 (3)	93.8 (2)	57.4 (3)
Hamilton	9.7 (1)	2.1 (9)	22.8 (7)	100.0 (1)	74.9 (1)
Winnipeg	1.3 (9)	2.0 (10)	15.4 (10)	65.0 (6)	40.5 (6)
Regina	1.0 (10)	2.6 (7)	18.7 (9)	54.0 (8)	35.4 (9)
Edmonton	2.8 (8)	3.7 (2)	25.4 (5)	65.0 (6)	48.7 (4)
Calgary	3.6 (7)	4.0 (1)	27.0 (1)	65.0 (6)	65.0 (2)
Vancouver	5.5 (4)	3.6 (3)	25.5 (4)	62.8 (7)	36.8 (8)

Source: Statistics Canada, Human Activity and the Environment, 1994

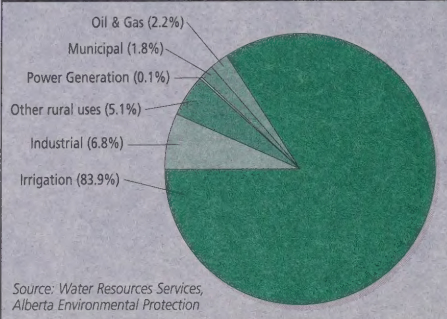
Urban air quality is receiving a great deal of attention, particularly in Edmonton and Calgary where carbon monoxide levels have been the highest in Canada in recent years. Calgary has registered the highest nitrogen oxide averages, while the amount of suspended particulates was second to Hamilton. In both cities, auto exhaust and other emissions combine with temperature inversions to produce periods of smog and haze. Edmonton is working with the Clean Air Strategic Alliance to identify air quality issues. Calgary has set a goal of improving or maintaining air quality at 1990 levels. As well, both are conducting comprehensive reviews of their transportation systems. One focus of these reviews is the impact of motor vehicle use on air quality.

Alberta's air quality management responsibilities have been assigned to the Clean Air Strategic Alliance whose priorities are determined by its stakeholders. The Task Force members urge the Alliance to make the issue of urban air quality a priority. It also recommends that municipalities work with the Alliance in this effort.

WATER MANAGEMENT

Like air, land and biodiversity, water has value whether or not it is consumed. Consumptive uses include drinking water, irrigation, manufacturing and other industrial uses. Non-consumptive uses include habitat for fish and other wildlife, and recreational pursuits such as boating and fishing. Most importantly, water is vital to maintaining the health of Alberta's ecosystems.

WATER CONSUMPTION FOR DIFFERENT USES, 1991



Alberta is blessed with a large supply of fresh water. However, neither the supply nor the demand is evenly distributed across the province. In the south, the driest region of the province, demand is highest, particularly for irrigation. In the north, demand is lower because precipitation rates are higher, water is more plentiful, and there is far less need for irrigation.

Irrigation requirements in southern Alberta dominate consumption at more than 80 per cent of the province's total. Regulations have set limits on the irrigated acreage in the South Saskatchewan River basin and, combined with the allocation of water for in-stream and other uses, will result in a levelling off of consumption.

"Southern Alberta uses almost 85 per cent of our water and has only 15 per cent of the supply. It doesn't take a rocket scientist to realize we're going to have a problem."
Delphi Survey Participant

Overall water use fluctuates as irrigation demand and industrial activities vary from year to year. Generally, consumption will increase as the economy recovers, oil and gas exploration resumes, manufacturing and processing expand, and population grows. Water use in eight Alberta cities, calculated over a five-year period, averaged 479 litres per person per day — ranging from a high of 1007 litres in Medicine Hat to a low of 396 litres in Fort McMurray. In cities where water is metered and charged for according to use, consumption is generally lower than in those centres which charge a flat rate regardless of the amount used.

"Environmental groups renewed their call for a chlorine ban... when the U.S. Environmental Protection Agency released its reassessment of dioxin. The study concluded there may be no safe dioxin level for humans."

"The Health Canada 'tolerable daily intake' of dioxin is 10 picograms per kilogram of body weight. That level is based on animal studies and assumptions which are now in question..."

Enviroline, Vol. 5 No. 17, 1994

"Studies now indicate that chlorine, which is used to bleach wood chips and in the process generates a family of organochlorines, known as AOX, which turn up in waste water, definitely is not the cause of sick and deformed fish that have spurred the crackdowns."

Globe and Mail, November 10, 1994

Water quality in Alberta's major rivers, lakes and other locations is monitored on an as-required basis. The main factors influencing quality are natural processes. For example, water originating in the mountains differs in the upper reaches compared to that lower downstream because of differences in soil and infusions from tributaries. Human factors influencing quality include effluents from industrial activities, municipal waste treatment plants and agricultural run-off.

In recent years, concern has centred on the cumulative and downstream effects of several large pulp and paper mills discharging effluents into Alberta's northern river systems. Pressure over the use of chlorine as a bleaching agent which puts dioxins and furans into watercourses has led to improved technologies which curtail or eliminate the use of chlorinated organic compounds in pulp manufacturing. Secondary treatment of mill effluent before it is discharged is becoming a standard procedure at most Canadian mills.

A major five-year Northern River Basins Study is underway on the cumulative effects of industrial activity and development on the ecology of the Peace, Athabasca and Slave Rivers. The cooperative project involves the governments of Canada, Alberta and the Northwest Territories, environmental non-government organizations, and Aboriginal peoples. A companion study, the Northern River Basins Human Health Monitoring program, has recently been established to determine the impact that water quality may be having on the health of people living in the basins.

"Farmers and ranchers in southeast Alberta should have more say in determining who can use the region's water and how it should be managed, a committee reviewing proposed water-use legislation was told."
Medicine Hat News, November 17, 1994

"A tug of war erupted between conservationists and farmers during a discussion of a draft water management policy in Red Deer."
Red Deer Advocate, October 22, 1994

Alberta Environmental Protection is currently developing an inventory of river resources to determine which rivers merit consideration for designation in the Canadian Heritage Rivers System. Public input has been sought for information on natural heritage, human heritage or recreational values of specific rivers or river reaches. The final list of candidate rivers is scheduled for completion in March 1995. The 17 rivers in Canada currently designated include the upper reaches of the Athabasca and North Saskatchewan within Banff and Jasper National Parks.

An overwhelming number of Delphi survey respondents stated that water quality and supply is a critical issue, and many expected serious conflict to emerge between competing users. Areas which were most frequently identified as needing to be addressed include local and international inter-basin transfers, minimum in-stream flow requirements, and strict agricultural and industrial water use. Concern has also been expressed over the potential longer-term pressure for water sales to the United States supplied by water diversions from northern river systems. For example, in the western states, an active water market has developed as competition increases for scarce irrigation supplies.

In the next two decades, Alberta will face a number of new circumstances and challenges to sustainable water, land and resource management. While Crown dispositions must provide sufficient certainty to licensees to justify investments of time and money, they must also provide the government, as owner of the water, land and resources, with enough flexibility to make modifications that meet future needs to manage resources sustainably.

These matters and many more are the subject of widespread — and often lively — debate as the draft of the *Water Conservation and Management Act* is discussed in public review sessions. This extensive review and revision of Alberta's water management policies and legislation has been underway since July 1991. In its initial phase, it involved public input, workshops, open houses, a Futures Workshop held by the Environment Council of Alberta, and a public survey. The current phase of the public consultation process seeks reaction to and comment on the draft legislation.

The thoroughness of the review process and the high degree of involvement of Albertans from all sectors underscores the importance of water resources to all of us. The Task Force strongly recommends that the proposed *Water Conservation and Management Act* set its sustainable management vision as a goal and ensure sustainable water quality and quantity:

Vision

All Albertans are stewards of the province's water resources. We have the privilege of using water to ensure the environmental, economic and social health of the province. We have the responsibility to live within the capacity of the natural environment to sustain water resources in the present and the future.

Given the projected demands on our water resources, it is imperative that the new Act ensures that the Crown, in issuing water licenses, retains its ownership and control over this valued environmental and economic resource.

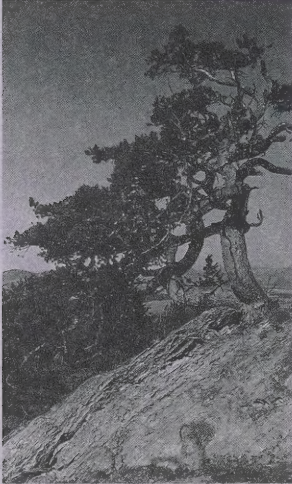


LAND AND RESOURCE MANAGEMENT

Renewable and non-renewable resources will dominate the Alberta economic agenda well into the next century.

"Prosperity means being successful in all we do... how well we manage both our economy and our environment."

Millard Wright, Task Force Member



Our continued prosperity requires that natural resources be managed sustainably within an ecosystem context. All elements of the environment are inter-related and should be recognized as components of interdependent ecosystems. While the use of commercial resources at sustainable levels is critical to our economy, those resources cannot be dealt with effectively in isolation from other relevant parts of ecosystems. Pressure on resources will put pressure on our natural landscape and the habitat that supports biodiversity.

The Task Force sees the need for sustainable land and resource management policies as the most urgent issue facing Alberta. Without updating and clarifying land-use policy, including determining the relationships among the policy elements, conflict will continue — *valley by valley and hill by hill.*

This conflict stems, to a degree, from uncertainty over provincial policy. There are policies in place, but some are outdated and it is unclear to many stakeholders how they relate or which take precedence. There is concern that the fundamental underpinnings of Alberta's land-use policies are really out of step with the times. The Eastern Slopes Policy, for example, was originally developed in 1977, and last revised 10 years ago. Integrated Resource Plans, which have been prepared for many areas in the eastern slopes, revise boundaries and land-use guidelines from the policy. Stakeholders indicated to the Task Force that the level of protection required for "Critical Wildlife" and "Prime Protection" zones is subject to different interpretations. Currently, industry, environmental non-government organizations and government land managers can only second-guess the manner in which policy will be applied, and which areas might be designated as protected areas.

The recent controversy over proposed natural gas activity in the Whaleback Ridge area may serve as a case in point. Amoco Canada Petroleum Company Ltd. paid the provincial government \$1.6 million for leases on the mineral rights in an area that has been described as "the largest undisturbed parcel of the montane ecological zone left in Canada". In 1993, the company applied to the Energy Resources Conservation Board for a license to drill an exploratory well. After spending an additional \$1.5 million during the approval process, Amoco's application was denied in September 1994, in part, because of the potential impact on the "ecological, recreation and aesthetic value" of the Whaleback. According to *Environment Views*, an Amoco spokesperson explained, "We spent time and money entering into a forum we thought could deal with our application only to find out other policy issues need to be resolved first."

Amoco did not believe its activities would seriously conflict with the government-developed Livingstone-Porcupine Integrated Resource Plan. However, the ERCB ruling was predicated, in part, on the possibility that the Whaleback might someday be designated a protected area under Special Places 2000.

Because of the ERCB ruling on the Amoco application, a number of planned projects in potentially sensitive areas are on hold. The Canadian Association of Petroleum Producers has requested that the government complete a system of protected areas to provide greater certainty to all stakeholders.

"Irreconcilable Differences? Energy leaders want simpler rules; environmentalists fear deregulation..."

Energy [industry spokesman says] regulations are so complex 'that a guy needs a lawyer standing beside him just to put a hole in the ground.'

...a spokeswoman for the Alberta Wilderness Association [says] 'It means the Alberta public (would have) almost no control over what industry does on our public lands.'

The Calgary Herald, November 27, 1994

"We simply need that wild country available to us, even if we never do more than drive to its edge and look in, for it can be a means of reassuring ourselves of our sanity as creatures, a part of the geography of hope."

Wallace Stegner, western historian, 1960
quoted in *Wild Alberta...our last, best, hope*
Alberta Wilderness Association

Designation of protected areas will have an impact on all resource-based industries, but the question of knowing their specific locations and restrictions in advance of major investment is important. Approximately 9.4 per cent of the province — representing more than 37,000 square miles/60,000 square kilometres — is now protected by federal and provincial legislation and contributes directly to the goals of Special Places 2000. An additional 4.4 per cent contributes to various components through provincial policies and designations, like forest land use zones and Prime Protection and Critical Wildlife areas in Integrated Resource Plans. Most of the legislated protected areas, about 85 per cent, is within national parks' boundaries. The mountain national parks and Wood Buffalo National Park offer significant protection in the Rocky Mountain and northern Boreal Forest regions. However, other natural regions are very under-represented in the current protected system. Protected areas in these other natural regions are crucial to the conservation of Alberta's full range of biodiversity.

Recent remarks by the Premier and the Minister of Environmental Protection reconfirm the government's commitment to Special Places 2000, the strategic plan which was released in 1992. The Minister has indicated that the system could be complete prior to the year 2000. This initiative would see the province complete a comprehensive system of protected areas that represent the diversity of Alberta's natural landscapes. While the goals of Special Places are four-fold — preservation, heritage appreciation, outdoor recreation, and tourism and economic development — this system of legislated, protected areas would assist greatly in creating certainty for industry and all stakeholders.

Both industry and environmental non-government organizations insist that Special Places designations be based on the science of the natural regions classification system, and include local and stakeholder consultation throughout the process of designating sites. The actual process of identifying candidate areas, as well as the method of public consultation, have yet to be determined.

The Task Force has developed seven directions to support sustainable resource management practices.

Direction 8:

Use government policy and local coordinated resource planning as two key means to ensure sustainable land and resource management.

It is essential that sustainability be an overriding resource management objective. This is already a feature of the business plans of certain departments and agencies, notably Environmental Protection and Agriculture, Food and Rural Development. The sustainable resource management goal should be made explicit and well-publicized for the government as a whole. It is especially important that Economic Development and Tourism practice and promote sustainable development principles.

Consistent with this goal, the government's overall land- and resource-use policy requires clarification. Without greater certainty about where development can or cannot take place, industry will face high — and perhaps unnecessary — project proposal costs. In addition, the potential for conflict over resource-use will increase and the protection of the environment will be less sure.



"You absolutely need to have local involvement in the process."

Clarence Olthuis, Task Force Member

To reduce conflict and achieve practical results at the local level, a new framework for local involvement in, and implementation of, land-use planning is needed. Current policy and guidelines, which usually apply broadly, may not always provide the best resolution of specific land or resource problems. As an alternative, local coordinated resource planning allows the province and local stakeholders to develop specific resource management plans suited to varying circumstances on Crown land. This should be used within an established policy framework, however, to provide for provincial interests and a necessary degree of consistency, and to ensure that strong planning standards are maintained.

Local coordinated resource planning has been endorsed by the Alberta Cattle Commission and has proven its value in specific instances, such as the development of a plan for the Medicine River flood plain. Habitat protection, important to preserving biodiversity, requires the active involvement of Crown land lessees. Resource management plans, developed jointly by the lessee and other stakeholders through the local coordinated resource planning process, are an effective mechanism to protect environmentally sensitive areas on leased land.

Implementation Directions

The Alberta government should explicitly adopt sustainable renewable resource management as an overriding objective. An ecosystem-based resource management approach is also needed. Current efforts to determine what is required for effective ecosystem management should be pursued as a priority.

The government, with input from other key stakeholders, should review and update its land- and resource-use policy framework, including provincial Integrated Resource Plans, to clarify the relationships among policies, guidelines and procedures, and to identify which has primacy. This will provide all interested parties with greater certainty regarding the parameters for their activities. For example, it would assist groups such as the Eastern Slopes Environment and Energy Committee in their deliberations. The ESEE Committee was established in 1993 to identify and resolve land-use conflicts south of the Bow River.

Within the context of a newly-developed policy framework which includes prescribed provincial standards, the government should enable local coordinated resource planning by recognizing it as a legitimate local option. Government should facilitate, participate in and support the results of locally-initiated applications of this new planning process. This will require having sufficient numbers of provincial field staff, familiar with government standards, to assist in the development of plans.

Local coordinated resource planning could also be appropriate for developing management plans for leased Crown lands with significant habitat or environmentally-important areas. The plans could then be incorporated in new or renewed lease agreements.

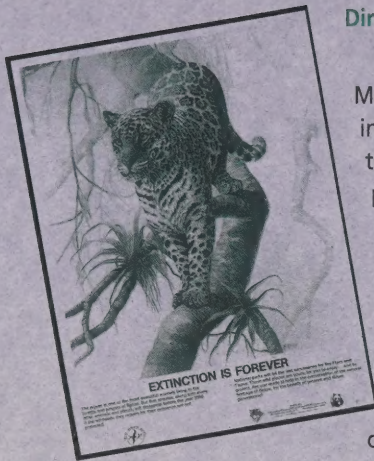
Implementation Responsibility

Alberta Environmental Protection — together with Alberta Agriculture, Food and Rural Development, and Alberta Energy — should collaborate with relevant provincial departments and associations, and with local stakeholders on the development of a new policy framework.



"What do we really want from our forests, our farmlands, our environment? We have to decide."

Don Laishley, Task Force Member



"We're involved in preservation. We're helping to keep up the strong pioneer tradition in Alberta of safe, family-oriented communities, clean air, water, and lots of green space and recreation opportunities... pride in our province and strength in our country."

Premier Ralph Klein
Television Address to Albertans,
January 17, 1995



"The parking lots of suburban shopping centres can be restored to agricultural land but extinct species cannot be brought back to life."

Projet de société, Canadian Choices
for Transitions to Sustainability

Direction 9:

Complete Alberta's system of protected lands.

More than half of the Delphi survey respondents thought current processes or initiatives were inadequate to address the issue of declining biodiversity during the next 20 years. The most cost-effective approach to dealing with anticipated pressures on resources, our landscape and habitat is to designate key areas requiring protection now while they are still in a relatively undisturbed state. Later, there may be no option, or reason.

The protection of representative areas of our landscape, ecosystems and critical habitat through a strategy such as Special Places 2000 makes economic as well as environmental sense. As world population grows and developing nations rapidly industrialize, opportunities for nature tourism experiences in other countries will decline, greatly increasing the value of pristine regions in Alberta. The wildlife that habitat supports is also an attraction to international tourists.

Land classification for protected areas is based on natural or biogeographical features, including geology, landform, soils and hydrology, plus other factors such as the area's climate, vegetation and wildlife. The designation of a protected area does not necessarily mean no access to or use of the land. This can and should vary with specific circumstances. For example, areas could be explicitly protected *for* something — such as caribou, other wildlife, rare plant species or wetland habitat — or *against* something — such as motorized traffic or industrial/commercial development. Management plans for the designated areas should be developed through local coordinated resource planning with the involvement of the provincial government and local stakeholders.

Although a system of protected areas is critical, habitat conservation will be more successful if the strategy is enhanced by other efforts. In some natural regions, such as the prairie zone, most of the landscape is privately owned. The purchase of good quality habitat by organizations like the Nature Conservancy of Canada is one alternative. In addition, there are several well-established programs that make formal agreements with landowners on how a parcel of land is managed, rather than making an outright purchase. For example, the Landowner Habitat Program has agreements with approximately 250 landowners covering 40,000 acres/16,187 hectares. The Habitat Steward and Heritage Farmstead Programs, both sponsored by the Alberta Fish and Game Association, have a combined involvement of about 140 landowners, protecting 33,500 acres/13,557 hectares. Prairie CARE — Conservation of Agriculture, Resources and the Environment — a program sponsored by the North American Waterfowl Management Plan, has secured about 245,000 acres/99,148 hectares through purchase, lease or management agreements with 1,100 landowners. Non-government organizations like the Federation of Alberta Naturalists, Ducks Unlimited Canada, Trout Unlimited, and Wildlife Habitat Canada contribute significantly to these and other programs that protect natural areas and wildlife species.

Canada is a party to the International Convention on Biodiversity, and the federal government and all provinces are jointly developing a strategy to meet the related obligations. Implementing this direction recommended by the Task Force would provide a valuable Alberta contribution to the goal of preserving biodiversity.

*"Protected areas are a key component
of sustainable development."
A Framework for Alberta's Special Places*

From the standpoint of economic development initiatives, the private sector — particularly those involved in oil, gas, mining and forestry ventures — needs to know the ground rules and parameters for future activity. Completing the program of legislated protected areas and establishing a rational, systematic procedure for access will help remove the uncertainty of dealing with development applications on a hearing-by-hearing basis. Both environmental groups and industry associations are urging the government to proceed with the consultative process to address the issue of protected lands. The Alberta Wilderness Association, in cooperation with other conservation groups, has developed a map of areas it proposes for protection. The Canadian Association of Petroleum Producers, which represents approximately 190 companies, has said it "...recommends completing the review of certain protected core areas where no industrial activity occurs...[and] supports the concept of well-managed buffer zones of less sensitive areas where specifically identified industrial activity can be conducted." In addition, the Alberta Forest Products Association and the Alberta Environmental Network have jointly urged the protection of unique natural environments and features in commercial timber areas.

Implementation Directions

A system of protected lands to preserve ecosystems and critical habitat, through representative areas of landscape of a significant size, should be completed as soon as possible. The establishment of this system will require inter-jurisdictional cooperation — between and among municipalities, provinces and the federal government.

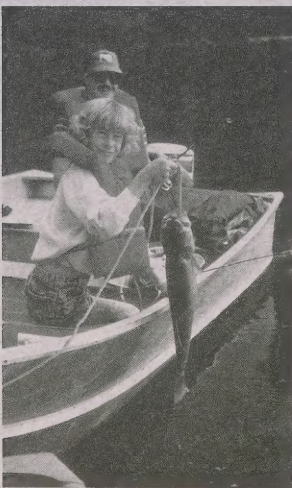
Management of the protected areas should be based on the ecosystem approach. The local coordinated resource planning process could be used to develop the necessary management plans for designated protected areas, as well as resource management plans for leased lands. Municipal tax loss should be taken into consideration, where it arises, as an issue to be resolved through the planning process. One approach, used by the Landowner Habitat Program, involves the payment on behalf of the landowner of local taxes on land set aside. This ensures habitat protection without imposing the cost on municipalities or the landowner.

The Task Force recommends greater public support for, and participation in, private conservancy to build upon those initiatives already effective throughout the province. A legislative framework for conservation easements would also assist private conservancy efforts.

The review of the *Water Conservation and Management Act* might suggest effective ways to protect aquatic habitat. For example, the government and hydroelectric producers could jointly develop an approach to end the degradation of aquatic habitat caused by excessive fluctuation of river flow during peak power production.

Implementation Responsibility

Environmental Protection, in cooperation with umbrella environmental organizations like the Alberta Environmental Network, industry stakeholders, conservancy organizations, and local stakeholders including municipal governments should collaborate on specific protected areas and their use.



Direction 10:

Implement systematic natural resource accounting.

Sustainable resource management requires sound, ongoing information on the quality and supply of resources. The relevance and accuracy of current resource information varies. Given the growing pressures on renewable and non-renewable resources we will face in the future, a more systematic, across-the-board approach to gathering and disseminating information is needed.

As mentioned in Section 1, merging the environment with the economy requires that we treat our renewable and non-renewable resources as capital assets, and that we have, for the most part, managed to live off the interest. However, sustainability requires accounting for the ecological capital as part of the province's balance sheet which provides data on our Gross Domestic Product. Just as labour, machinery and construction are counted as an addition to our economic well-being, so too should the value of our remaining resources.

[Without a natural resource accounting process] "...a country could exhaust its mineral resources, cut down its trees, erode its soil, pollute its aquifers, and hunt its wildlife to extinction, but measured income would not be affected as these assets [were disappearing]."

Robert Repetto, 1989
World Resources Institute

Natural resource accounting is receiving increasing international recognition as a practical means of tracking the quality, quantity and value of resources to determine the sustainability of both the environment and the economy. Natural resource accounts track the current stock of resources, depletion and growth/discovery rates, and the economic value to the province from the use of these resources. This process represents a major shift in economic philosophy by explicitly recognizing natural resources and environmental services as assets or capital in the economy, and then incorporating the impact of their depletion and degradation into the traditional measures of economic performance.

Quality and quantity are of primary importance to sustainable resource management, but the value of resources, given the way they are currently used, could also have relevance for decision-makers. For example, according to strong proponents of the procedure, "...if we are harvesting more timber than is being naturally replenished through growth and reforestation, then we are living off nature's capital at an unsustainable level, both ecologically and economically. In the case of a non-renewable resource, like oil and gas, if we are not investing a sufficient amount of the income generated by resource use into alternative energy forms or other renewable investments, then we are compromising future sustainability."

[Unfortunately] "...the last fish caught in the ocean will still be a dollar added to our GNP."

Professor Louis Lapierre
Moncton University

Alberta is a leader in the development of pilot natural resource accounts, and the province should build on this expertise. In December 1994, the Government of Alberta released a document, *Measuring Up*, for public review and comments. This document outlines proposed measures, flowing from the business plan process, as key indices of how the government is doing its business. At least one of these indicators — the Resource Wealth Index — would require the application of natural resource accounting to be implemented. Preliminary accounts have been developed for oil and gas, coal, forests, carbon fixation, and agricultural soils.

"Alberta has both the technology and the expertise to measure natural resources."

Diane Thompson, Task Force Member

The reporting of resource accounting information publicly is important to the empowerment of the private sector, environmental groups and individual Albertans to enable them to play a larger sustainable development role.



"Alberta is definitely out in front not only in Canada but in North America as a whole in developing and applying [natural resource accounting] concepts."

Robert Repetto, 1991
World Resources Institute

"Urban encroachment and highways put a lot of land under asphalt. While not the same type of degradation, it does take land out of production — in some cases, high quality farmland — [that] is unlikely ever to be reclaimed."

Delphi Survey Participant

Implementation Directions

The Alberta government should report regularly to the public on the quality and supply of key environmental resources. Either the State of the Environment or a State of Sustainable Development report could be the vehicle for this.

Systematic natural resource accounting could form the framework for the ongoing information required for this reporting. At the same time, the process would help determine where resources are under the most pressure, where data are most readily available, and where ongoing resource information is most deficient. Implementation could be phased-in, giving priority to accounts where data are readily available. For example, the information should be put into the context of existing systems available through the Alberta Energy and Utilities Board, the Timber Management branch of Alberta Environmental Protection, and other regulators and resource managers.

Although excellent work has been done in the development of Alberta's natural resource accounts, a complete picture is not yet available. Improvements in data collection and valuation methods need to be made. Areas where information is lacking, deficient and/or difficult to access at present, and which should be addressed as soon as possible, include:

- actual rates of growth of commercial timber resources;
- time-series data on the conversion of forest to other uses (oil and gas activities, agricultural land clearing);
- private land logging and extent of removal of timber capital from private land; and
- the most effective and efficient way to conduct biodiversity accounting.

Once the framework has been established, the compilation of information becomes an ongoing statistical exercise to provide an effective tool for monitoring sustainable development.

This natural resource account information should be made available to the Standing Policy Committee on Natural Resources and Sustainable Development, the Natural Resources Conservation Board, the Alberta Energy and Utilities Board, private sector decision-makers and other stakeholders in a useful form.

Implementation Responsibility

Alberta Treasury should develop the framework in cooperation with Environmental Protection; Energy; Agriculture, Food and Rural Development; the Provincial Auditor General; the resource industry sector and its associations; environmental non-government organizations; research agencies; and Alberta universities.

Direction 11:

Focus Alberta's Agriculture and Food Council on the active coordination of industry progress toward sustainable development.

The vast majority of Albertans live in the Grassland and Parkland natural regions — where the bulk of the province's agricultural industry is centred. The situation in the entire area, already facing intense pressure, will be exacerbated by population growth and urban expansion. As a result, agricultural management practices have to be particularly geared to maintaining habitat and the natural landscape.

The long-term future of agriculture depends on maintaining the quality of the soil,

**ADDITIONS & DELETIONS TO THE
AGRICULTURAL LAND BASE
1976 TO 1990**

Additions	Hectares
Public land disposition	179,100
Abandoned well sites	23,500
Reclamation	3,800
TOTAL	206,400
Deletions	Hectares
Urban annexation	118,000
Oil & gas activity	107,000
Residential subdivision	61,400
Transportation	24,600
Resource extraction	16,600
Industrial/commercial	10,200
Public service/utilities	3,800
TOTAL	341,600
Net loss over 15 years: 135,200 hectares	
Source: Alberta Agriculture, Food and Rural Development	

*"Sustainable management means
profit and environmental respect
aren't mutually exclusive goals.*

*"Cattle production, species diversity,
recreation, and wildlife habitat are
all possible. ...In fact, good range
management is an imitation of the
natural system."*

Lorne Fitch, Biologist
Alberta Environmental Protection

*"For most of this century, farmers
cleared land at will. Settlement
preservation happened by accident
because we couldn't clear it, drain
it, or plow it under."*

Elmer Kure, Task Force Member

and ensuring the availability of arable land. Soil salinity, erosion and the reduction of organic content will continue to create significant problems into the next two decades, despite improved cultivation and conservation practices. As livestock production increases, so does the need for more rangelands and the potential for water pollution. Both livestock and grain producers will have to be mindful of the importance of maintaining water quality.

In addition, there is growing concern about agricultural land loss to urban/industrial sprawl and the infrastructure that is needed to accommodate this expansion. This has received attention in Edmonton where market gardeners, greenhouse operators and tree nursery farmers have approached City Council about having several thousand hectares of prime land in the northeast preserved for agricultural use for the next 30 years. They contend that this \$4.5-million industry, already employing hundreds of people, could triple if the land were given long-term protection which would increase the level of certainty among producers about investing in more equipment and larger operations. Some developers who own land in the area are opposed to restricting sub-division development and other land-use potential. Council has referred the matter to the planning department for further study and consultation with stakeholders and the public.

The Alberta agriculture industry has a growing appreciation of the importance of sound environmental management to its prosperity, and many positive initiatives are being taken, such as improved range management and tillage practices. However, overall industry coordination of progress toward sustainable agriculture must continue to ensure stronger, more consistent results.

Environmentalists and range managers have been working together for seven years at the Antelope Creek ranch west of Brooks to demonstrate cattle and wildlife can co-exist. Decimated by years of drought, rangeland conditions have improved so much that some rare wildlife species are returning and the stocking rate of the cattle herd is being increased. The ranch is part of southern Alberta's contribution to the North American Waterfowl Management Plan, and involves representatives from Alberta Environmental Protection, Ducks Unlimited, Wildlife Habitat Canada, Agriculture Canada, the Eastern Irrigation District, and the Alberta Fish and Game Association.

The gradual removal of federal and provincial subsidies, in keeping with international trade agreement requirements may, for economic reasons, facilitate an increased emphasis on more environmentally responsible and efficient resource-use in the agricultural sector. As with other resource sectors, public perceptions inside and outside Alberta of the soundness of management practices will have a growing influence on market access and market share. A unified industry approach is needed, to ensure consistent progress toward sustainable agriculture, and to inform the public about practices in the industry.

In 1993, a province-wide consultation process on the future of Alberta's agricultural industry was completed. The report resulting from the *Creating Tomorrow* process provides the vision of a globally competitive, self-reliant agriculture industry, based on sustainable development. As a follow-up, the Agriculture and Food Council was established. Part of its mandate is to monitor agriculture's progress toward sustainable development.



"We can only hope for improvements in sustained use under existing ecosystem conditions. The future, I believe, is positive because farmers know that conservation or sustained use is in their own best interest."

Delphi Survey Participant

Implementation Directions

The Agriculture and Food Council, with its broad industry representation, is well-positioned to actively coordinate progress toward sustainable development. Within the context of economically-sound resource management and processing, the Council should address the following issues as a priority:

- the efficient use of water and the need to strengthen practices for crop and livestock production that avoid degradation of water quality;
- the need to maintain soil quality, including its organic content; and
- the need to maintain wildlife habitat and ecosystems within areas of agricultural production.

The Agriculture and Food Council should compile a directory of associations dedicated to conservation practices and sustainable agriculture education, and promote the provision of relevant programs. In addition, it should publicize the industry's progress toward sustainable development, and provide information on advancements and new technologies within the industry and to the public.

Implementation Responsibility

The Agriculture and Food Council should work in cooperation with agricultural organizations, agencies, volunteer associations, and Alberta Agriculture, Food and Rural Development.

Direction 12:

Make sustainable tourism a reality in Alberta.

The attraction of Alberta as a natural, "frontier" destination will increase as other international wilderness vacation areas lose their appeal because of industrialization and population growth. Delphi survey participants agree that as other natural environments become more scarce in the global context, pressure will be placed on our ecosystems. Maintaining Alberta's wilderness appeal will undoubtedly lead to greater tourism opportunities and economic benefits. However, opening areas to more people and developments, such as back-country tourism, may diminish the value of the original attraction.

Tourism is Alberta's third largest industry and employs upwards of 100,000 people in the hospitality field. Alberta travellers and visitors from elsewhere place high value on our unspoiled natural attributes. Banff National Park is unquestionably the most popular destination, with three million visitors heading to and through its gates annually. The federal government recently appointed a committee to assess the cumulative impacts of tourism development in the Bow River valley corridor portion of the Park. Established in response to growing public concern that the area between Banff and Lake Louise is becoming over-developed at the expense of the region's wildlife, the committee is expected to deliver its final report in mid-1996. In the meantime, public discussions are being held to address specific issues such as tourism, transportation and wildlife. Concern has been raised that the Kananaskis Country/Canmore areas, which are developing outside the national park boundaries, should be included to provide a full assessment of the entire ecosystem.

Sustainable management practices specific to the tourism industry are desirable and necessary. In 1992, a Code of Ethics and Guidelines for Sustainable Tourism were developed and agreed to by the Tourism Industry Association of Alberta and





Alberta Tourism, along with other provinces and tourism organizations across Canada. Although the Guidelines have been adopted by the tourism industry and government, more concerted effort is required to put them into practice.

The way to implement the Guidelines has to be determined, and the benefits of implementation need to be demonstrated and promoted within the industry. Sustainable tourism operations could yield cost savings through the more efficient use of energy, water and other resources, while protecting the environment. Equally important, sustainable Alberta tourist operations could help attract visitors, given the increasing sensitivity to environmental impacts.

Among other industry initiatives, Canadian Pacific Hotels and Resorts developed its Green Partnership Policy in 1991 to make all its operations more environmentally friendly, and to give its employees a clear idea of how facilities should be managed. The policy focuses on waste management, energy and water conservation, and purchasing practices. Examples of environmental practices include: providing guest blue boxes; installing flow-restriction devices in shower heads and taps; replacing non-dimming incandescent light bulbs with compact fluorescent bulbs; reducing the use of aerosols; and installing econo-flush toilets. One member of the chain, the Hotel Macdonald in Edmonton, was a finalist in the 1994 Emerald Awards, a province-wide award for environmental excellence.

Implementation Directions

The Alberta Tourism Corporation, a proposed industry vehicle to promote tourism objectives, is expected to be operational in the coming year. Given its role, this would be a logical body to take the lead in coordinating a cooperative effort to strengthen sustainable tourism in Alberta.

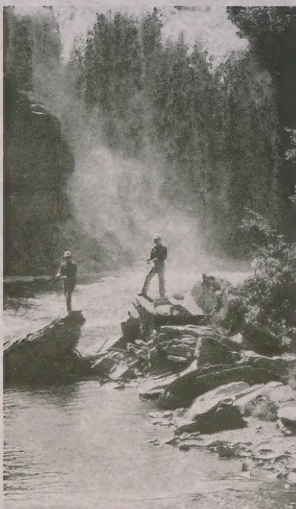
The Corporation and various tourist industry associations should build on the existing Code of Ethics and Guidelines in stages that could include:

- reviewing, updating and, where necessary, expanding on the Code of Ethics and Guidelines to make them more concrete and relevant to specific Alberta tourism sectors;
- implementing the Guidelines on a pilot basis for several distinct types of operations that will serve as demonstrations for broader application, and identify specific implementation problems and solutions;
- publicizing the methods and advantages of implementation among the industry; and
- promoting Alberta's progress toward sustainable tourism in regions that are — or can be — significant sources of visitors to Alberta.

The implementation of the Code and Guidelines should recognize that Alberta's natural beauty and wildlife are major attractions which must be protected against development.

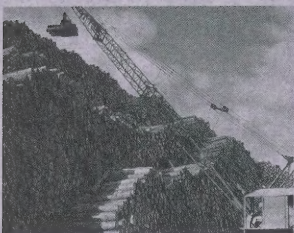
Implementation Responsibility

The Tourist Industry Association of Alberta, other tourism industry associations, Economic Development and Tourism, and Environmental Protection should develop the mechanism for implementing the Code of Ethics and Guidelines in cooperation with the Alberta Tourism Corporation, assuming it becomes operational.



"Tom Peters called Alberta an environmental jewel. He suggests eco-tourism is a growing component of the Alberta Advantage that will remain long after some other resources have been depleted. Now is the time to safeguard this advantage."

Bill Calder, Project Director



"In the future, we will have more value added to our forest industry, and get maximum return on our forests, not merely a short-term gain from the sale of raw materials."

Delphi summary
Praxis Inc.

Direction 13:

Place priority on maximum value-added manufacturing and processing in resource development decisions.

For any resource that is to be developed, the economic and job value can vary significantly according to the end product. Clearly, adding maximum value to a given unit of a resource is highly desirable from a sustainable development perspective, assuming other outcomes including environmental impacts, are equal. Under those circumstances, the economic benefits will be furthered without the need for a higher rate of resource depletion.

For example, the forest industry in Alberta is composed of harvesters and manufacturers. Within the forest products sector, there are two major industry groups:

1. the paper and allied products industries, which in turn are made up of pulp and paper including newsprint, and converted or value-added paper products; and
2. the solid wood products industries, which in turn are made up of commodity products such as lumber and panel board, and a range of value-added wood products.

From the standpoint of employment opportunities per unit of wood, producing lumber creates more jobs than manufacturing pulp or newsprint. However, from the value-added dollar yield per cubic metre and depending on market forces, lumber generates less revenue from sales than pulp and newsprint. These differences have to be reconciled to determine overall value, but should form part of the equation in the project approval process.

Quite simply, the concept is based on the premise of "more bang for your buck" — another way of "seizing opportunity" by diversifying the Alberta economy. Alberta's economic strategy specifically targets the forestry, agriculture and food industries as strong areas for value-added activities.

Implementation Directions

In its decisions on resource allocations, the government should measure the potential for maximum value-added against resource consumption as one important criterion. This objective will be more easily facilitated when natural resource accounts are fully developed and available.

Where other factors are equal, Alberta should promote the export of processed goods and technologies, including products developed through recycling and recovery programs. Such sound sustainable management practices do not preclude Alberta from maintaining its position in world markets as an innovative and competitive supplier of high quality, raw materials.

Implementation Responsibility

Environmental Protection; Economic Development and Tourism; Agriculture, Food and Rural Development; Energy; the Natural Resources Conservation Board; and Alberta Energy and Utilities Board, should recommend resource development projects accordingly.

*"Nothing is sustainable in a society
with deteriorating health."*
Delphi Survey Participant

*"There are specific and known
problems where chemicals and
materials are of immediate and
serious concern. The facts, not the
feelings, must be dealt with."*
Delphi Survey Participant

Direction 14:

Develop better health information related to the environment.

Albertans are concerned about the impact of the environment on their health. In the 1994 Angus Reid nationwide survey on the environment, 64 per cent of Canadians agreed strongly that "environment problems are already causing an increase in health problems". Fifty-four per cent of Albertans shared this belief.

Delphi survey participants felt that, in coming decades, Albertans would increasingly judge the value of future economic development by its impact on their health. Unless standards are in place and seen to be working, the public will react negatively to new industry, inhibiting development of our economy.

Better information on the linkages between the environment and population health would provide substantial support to preventive health efforts, contributing to cost savings by identifying and allowing early action to address negative environmental influences on human health.

At present, our knowledge about environmental impacts on health is limited. However, given that such effects on health are a persisting public concern, this direction would provide a better base of information with which to address the issue.

Some Delphi survey participants suggested that greater involvement by Alberta Health in assessing and analyzing potential health risks when development proposals are being considered would provide important input to the decision-making process. In fact, in its 1990 *Rainbow Report*, the Premier's Commission on Future Health Care for Albertans recommended that "...the health impact on Albertans [be] given full and equal consideration in matters of economic development and job creation".

Implementation Directions

Alberta Health should undertake systematic, ongoing monitoring and surveillance of population health, using existing data to track health status in relation to environmental factors. The development and assessment of this information will:

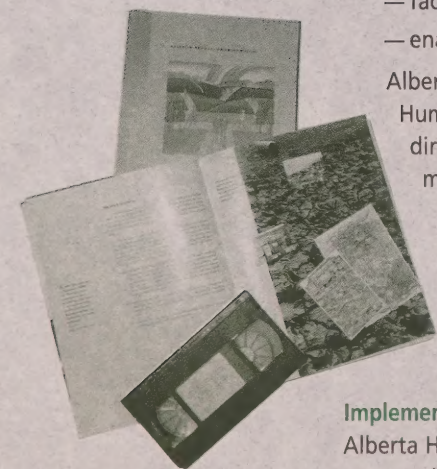
- identify factors and regions of concern;
- facilitate prevention programs; and
- enable elimination or mitigation of established environmental problems.

Alberta Health's sponsorship and involvement in the Northern River Basins Human Health Monitoring Program is a positive step. Implementing this direction would build on that program and on Alberta Health's planned movement toward this type of monitoring.

Expanding the research component of the Alberta Heritage Foundation for Medical Research to include health implications of the environment should also be considered. A similar recommendation regarding collection and analysis of health status information was made by the Premier's Commission on Future Health Care for Albertans.

Implementation Responsibility

Alberta Health, through its Environmental Health Services Branch, should work in cooperation with Regional Health Authorities, the Alberta Heritage Foundation for Medical Research, and other agencies such as the Alberta Cancer Board.



PRIORITY THREE

Maintain the “Alberta Advantage” and ensure our success as a trading province through sound environmental management.

“Trade and environment is becoming the next sustainable development frontier — where governments, industry, labour and environmental groups are all being challenged to balance economic needs with environmental imperatives.”

Terrascope, Summer 1994

Alberta is dealing with an increasingly globalized economy — an economy driven more and more by international agreements linking trade with environmental performance.

It is becoming necessary for governments to work closely with all other stakeholders to achieve an integration of trade liberalization, economic development and environmental considerations. Recent multilateral trade agreements — the first being NAFTA, the North American Free Trade Agreement — underscore the linkage between economic and environmental policies. On the environmental side, the Biodiversity Convention and the Climate Change Convention have broad economic and operational implications. In addition, NAFTA countries — the United States, Mexico and Canada — crafted a side deal, the North American Agreement on Environmental Cooperation, specific to environmental performance; and the World Trade Organization has established a Committee on Trade and the Environment.

Different approaches to environmental practices across jurisdictions can make it difficult to assess actual environmental performance levels. Misperceptions regarding performance can result in market access problems. These differences can also be used to justify the imposition of protectionist trade barriers under the guise of environmental protection. With declining tariff barriers, protectionists have seen new opportunities to restrict trade by imposing environmental conditions on imports, particularly in the European Community and the United States.

On a more direct level — buyer to seller — customers and consumers are scrutinizing environmental track records of jurisdictions, and the companies within them, to determine acceptable trading partners and suppliers. Because of our dependence on exports, Alberta must be exemplary in its application of sustainable development policies and environmental management practices to protect its market access.

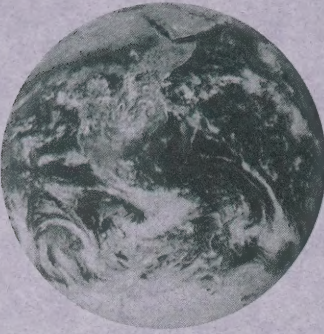
Resource-based industries are particularly vulnerable to scrutiny and criticism. These export-oriented industries face growing environmental awareness and pressure, locally and globally, which present both threats and opportunities. On the negative side, for example, the decision by some European and U.S. companies not to buy from a British Columbia pulp and paper manufacturer had a negative impact on that company. In Alberta, there have been recent attempts by environmentalists to prevent natural gas exports to the United States. On the positive side, high quality, sustainable development practices can ensure a more stable trading environment, improve technologies, and create expertise in an emerging environmental industry.

“If public policy catches up to public concerns regarding environmental protection, stricter [trade] guidelines will be enforced.”

Delphi Survey Participant

“Canadian pulp and paper producers have started back on the long, hard road to regaining market share in Germany lost to environmental attacks and stiff competition.”

The Financial Post, October 17, 1994



"We are rapidly moving toward a world in which the real environmental standards that matter are the customers'. As a trading province, Alberta must keep pace with this fundamental change."

Bob Page, Task Force Member

Maintaining the "Alberta Advantage" is contingent on entrenching sustainable development as a cornerstone of the province's trade strategy. While Alberta has a good reputation for its strong environmental standards, we will continue to face international pressure to meet increasingly more stringent performance measures. More and more, it is environmentally-conscious individual citizens and corporations that will be setting these performance measures.

Keeping abreast or ahead of performance expectations will allow Alberta to protect and enhance its access to world markets. Delphi survey respondents suggest the province should ensure sound development within its own jurisdiction, using knowledge gained from the experience of others. They felt that just because Alberta is a relatively small player in the world arena, we should not shirk our responsibility to do our part in addressing global issues. Given our small size, they said, it is difficult to go against the flow... but it may be easier to be a leader.

To this end, industry and government will require the knowledge and services of professionals and technicians trained in environmental technologies and sustainable development practices. In addition, there will be a growing need for expertise in international environmental and trade laws and negotiations. Marketing and promotional strategists will be called upon to promote Alberta's products, environmental services and regulatory standards.

Meeting regulatory requirements and responding to public concern over degradation and pollution have led to the development of a promising environmental industry sector in Alberta. Both clean and clean-up technologies and expertise will provide opportunities for significant sales prospects within Alberta and outside the province, particularly in developing countries. Alberta's continued environmental leadership can be an important factor promoting this industry.



Direction 15:

Become a leader in environmental management and communicate our progress.

To maximize markets and trade opportunities, Alberta must be knowledgeable regarding the environmental standards and expectations of other jurisdictions, and their perceptions of our environmental performance. Resting on our laurels will not be sufficient in an increasingly competitive and environmentally sensitive trade arena. We must prove and promote our commitment to sustainable development through legislation, performance and deliberate action. Awareness of how we are perceived by our trading partners, and environmental activists, will provide the opportunity for proactive and planned reactive strategies to avoid the potential for trade restrictions. Delphi survey participants cautioned that we should anticipate greater pressure from and involvement of the international community in local environmental issues that are perceived to have implications beyond our borders, and which Alberta is seen to be handling poorly.

Taking into account international standards and practices and what makes economic and environmental sense in Alberta, the province will be in a position to decide whether it is necessary to strengthen its standards or practices in particular areas. However, different approaches to environmental practices — country to country, and even province to province — can make it difficult to assess actual performance levels.

[The aim of] "...one of Germany's largest magazine and newspaper publishers...is to encourage creation of some kind of reliable international standard — a label or code — to indicate which products originate from 'sustainable forestry' harvesting."

The Financial Post, October 17, 1994

"Global pressure will ultimately shape what type of sustainable environment we will have here. We can either engineer one now that anticipates stricter guidelines or we can wait for the pressure to be brought to bear."

Delphi Survey Participant

"[Canadian pulp and paper] industry spokesman Don Laishley said government and industry must improve international efforts to show that Canada is practising environmentally-sound forestry."

The Edmonton Journal, April 7, 1994

"Alberta could serve as an example of sustainability and conservation to other nations."

Delphi Survey Participant



Alberta should continue to support the development of voluntary international standards for measuring environmental performance through organizations such as the ISO — International Standards Organization. These standards are a tool to help industries prove that they do, in fact, meet the standards of other jurisdictions. For example, the ISO, with participation of the Canadian Standards Association, is in the process of developing international voluntary environmental management standards for adoption in 1996. Voluntary standards are an important interim step until full international standards can be included in World Trade Organization agreements.

At the same time, the Canadian Standards Association is developing voluntary national guidelines for sustainable forestry management practices, with the intent of having them adopted by the ISO. A number of Alberta industry organizations, including the Alberta Forest Products Association and the Environmental Services Association of Alberta, are involved in this initiative.

Standards should be developed in the context of maintaining or improving levels of environmental performance. Any effort to compromise environmental standards could have a negative impact on Canadian market access in other jurisdictions. Implementing strong environmental protection measures and applying sustainable development principles are increasingly important in dealing with trading blocs, such as the European Union, where environmental standards are a major consideration for Alberta and Canadian exporters.

Implementation Directions

Over and above exemplary sustainable development practices, the key to maintaining the "Alberta Advantage" is information and communication. Both government and industry must monitor national and international environmental standards and practices to determine how good we must be to compete with other suppliers. Where warranted, we must strengthen Alberta's standards and practices to ensure sufficiently high environmental performance.

In addition, we must monitor national and international perceptions of our standards and practices. In today's world of high-tech communication, Alberta's trading partners are informed instantly about any environmental problems, but they do not always learn about sustainable development progress. We need to let the world know about the "Alberta Advantage", and the successes of individual companies as well as industry sectors in meeting and beating environmental standards. For example, the Canadian Pulp and Paper Association maintains an office in Brussels, Belgium to address environmental issues affecting customer relations. Part of the challenge is to counter "bad press" over our forestry practices, and to educate media and customers about Canada's improved technology, high environmental standards and stringent reforestation requirements.

We should use multilateral forums, where possible, to publicize Alberta's environmental performance internationally, working with the federal government as appropriate. In addition to the World Trade Organization, these could include the International Standards Organization (ISO), the Organization for Economic Cooperation and Development (OECD), the European Union, the Geneva-based Business Council on Sustainable Development, and various United Nations committees on sustainable development and/or the environment. In addition, there are numerous opportunities for industry and government leaders to participate in international level conferences on progress toward sustainability.



"Signing the side agreement to the NAFTA is an opportunity for Alberta to show leadership."
David Anderson, Task Force Member

"[The environmental industry] was virtually non-existent in 1965 but is now recognized as one of the foundations of the new economy, along with software/high-tech, communications and transportation."
Gary T. Gallon, President
Canadian Environmental Industry Association

If Alberta is to continue to be a successful player in the international marketplace, we need to develop our own "intelligence" and expertise on trade and environment issues rather than relying solely on the federal government for this information. Implementing Alberta's international vision must continue to be an economic priority within the current spending restraint program. Alberta's foreign offices can play an important role in monitoring environmental trade concerns to identify potential problems and opportunities, and to inform our trading partners about our environmental performance record.

On a routine basis, both government and industry should make relevant information concerning Alberta's environmental and sustainable development initiatives available over computer networks such as the Internet. Among these are:

- the Alberta Vision of Sustainable Development and its detailed elements;
- the *Alberta Environmental Protection and Enhancement Act* and other appropriate legislation;
- the public participation guidelines for Alberta Environmental Protection;
- the Clean Air Strategic Alliance;
- various reports, such as *Ensuring Prosperity — Implementing Sustainable Development*, and codes of ethics regarding environmental performance and/or sustainable development, including those from the private sector.

Alberta should promote the development of voluntary international standards for judging environmental performance, through organizations such as the Canadian Standards Association and the International Standards Organization.

The Government of Alberta, by formal notification to the federal government, should agree to be covered by the North American Agreement on Environmental Cooperation, the supplementary agreement to NAFTA. It also should insist that the current environmental provisions be adopted by any other countries joining NAFTA to avoid giving access to our markets without comparable environmental standards and costs.

Implementation Responsibility

Environmental Protection, Federal and Intergovernmental Affairs, and Economic Development and Tourism should work in cooperation with the federal government, major industry associations, the Canadian Standards Association, the Environmental Services Association of Alberta, and environmental non-government organizations.

Direction 16:

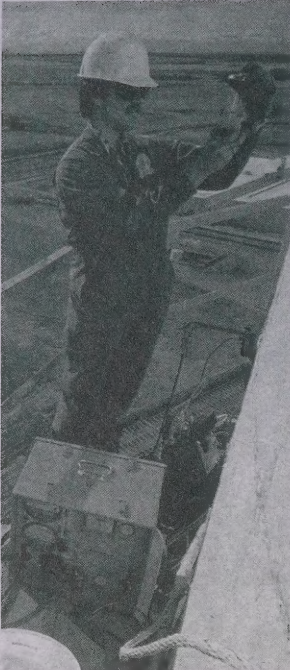
Ensure sufficient numbers of trained environmental professionals.

Given the growing focus on environmental performance, Alberta industries will face increased demand for trained environmental professionals and technicians. Traditional needs exist in areas such as pollution prevention and monitoring, site remediation, energy conservation, waste reduction and recycling, and natural resource management. Now, more opportunities are being created for trained professionals in life-cycle analysis, environmental auditing, biotechnology, and general environmental management.

The environmental industry, which includes environmental goods, services and technologies, is now Canada's fifth largest industry sector and shows promising growth prospects during the next two decades. To support this growth, trained personnel

with strong science skills and a working knowledge of applied interdisciplinary and process matters will be required.

The development of strong, relevant educational standards is important to ensure that the workforce is properly equipped to turn creative ideas into sound environmental practices and to turn problems into opportunities. Canada is a leader in North America in setting national environmental professional standards through the Canadian Council for Human Resources in the Environment Industry, which is located in Calgary.



Industry and government must work with Alberta's post-secondary institutions to ensure that the education system responds to these emerging labour force needs. Specific programs and courses must be designed and provided at the degree and diploma levels. As well, provision should be made for retraining workers, already part of the labour force, to adapt their skills to environmental practices and technologies. A number of professional development opportunities are already available, including extensive programming at the Faculty of Environmental Design at the University of Calgary, and the Environmental Business Development seminars offered in partnership by the Environmental Services Association of Alberta and the University of Alberta. As well, the Petroleum Industry Training Service offers various environmental courses specific to the oil and gas sector.

To ensure that graduates meet high professional standards that mobilize a competitive workforce, our universities, colleges and technical institutes must apply consistently rigorous academic standards. Educational requirements in the environmental industry sector, particularly in the consulting area, are among the highest in any industrial sector in Canada.

Ensuring a highly-trained workforce will help Alberta companies realize global business opportunities for innovative environmental technologies and services, and for natural resource-based industries which must respond to international performance standards.

Implementation Directions

Government, post-secondary educational institutions and the private sector recognize that education must be geared more closely to the needs of the economy. A concerted effort is required to ensure a sufficient pool of trained environmental professionals to support Alberta's expanding environment industry and resource-based sectors. Degree programs related to the environment in professional faculties should be strengthened with more emphasis placed on applied studies. Program development funding should be explored through mechanisms such as the Access Fund, provided for such innovation purposes by Alberta Advanced Education and Career Development.

There should be a continued and expanded focus on retraining and professional development of workers in core environmental competencies to meet the changing needs of the labour market in this area.

Environmental professionals from the private sector should be involved in the development of any new environmental curriculum or the strengthening of existing programs at universities, colleges and technical institutes.

"An Access Fund Advisory Committee is working to provide recommendations for the allocation of \$47 million to create the equivalent of 10,000 new student places over the next three years.

"Other criteria for the selection of proposals include the demonstration of innovation, accountability, partnerships with employers, collaboration among providers and responsiveness to regional need."

*New Directions for Adult Learning in Alberta
Advanced Education and Career Development*

Alberta should continue to support the efforts of the Canadian Council for Human Resources in the Environment Industry in developing strong national professional standards.

Implementation Responsibility

Post-secondary educational institutions should work in cooperation with Advanced Education and Career Development, the Canadian Council for Human Resources in the Environment Industry, the Environmental Services Association of Alberta, other industry and professional associations, and environmental non-government organizations.

Direction 17:

Develop environmental technology and expertise to meet the needs of the future.

Alberta's existing strengths in environmental technology and expertise contribute to a high-quality environment as well as provide economic opportunities in the expanding international market for such technology, goods and services. We must build on these strengths if we are to increase our markets in the highly competitive global marketplace.

Alberta is a leader in a number of areas of environmental technology, many of which are driven by our resource industry sectors. Originally focused on environmental clean-up and remediation, there is now more emphasis being placed on the development of new processes and technologies. The province boasts a number of competitive advantages including:

- strong research and development expertise at the Alberta Environmental Centre and the Alberta Research Council;
- a vibrant industry association, the Environmental Services Association of Alberta with more than 300 members;
- numerous Alberta-based firms which have developed various processes and products which meet or exceed internationally recognized standards;
- a regulatory climate which encourages innovative design and application of technologies, processes and products that can be commercialized and exported.

The development of preventive technologies and reduction practices is part of Alberta's strength in this area. Other success stories include sulphur recovery, hazardous waste treatment, land reclamation and remediation, and expertise in new data handling tools such as geographic information systems (GIS).

Several Alberta companies have introduced innovative technologies which are in demand here and abroad. For example, Intera Information Technologies Corporation, based in Calgary since 1974, is the world's only supplier of commercial airborne synthetic aperture radar — SAR — data. The company is conducting a \$7-million vegetation mapping and technology transfer program for 10 parks and forest reserves in eight Central African countries. Using the STAR-1 SAR system, Intera is providing topographical information, which was available by no other means, to assist with ecological planning, and sustainable forest and biodiversity management.

"The environment industry in Alberta is growing by leaps and bounds. Association membership has more than tripled since 1990, and we believe our strong, diverse membership is a true barometer of the vibrancy of the environmental sector."

Sandy Sutton, Environmental Services Association of Alberta



"...the private sector and government are expected to find new ways of making environmental protection profitable for individual firms, as well as society as a whole.

Today, programs to reduce and recycle waste and to market products with less environmental impact are at the forefront of executive management strategies."

Robert Robertson
Materials Management & Distribution
September 1994

In 1987, the Alberta Research Council, the U.S. Electric Power Research Institute and a consortium of private sponsors including Thermo Design Engineering — TDE — discovered that coal had cleaning characteristics that would mitigate hydrocarbon contaminants in soil. With the "Clean Soil Process" technology, patented in 1991, TDE is leading a \$9.5-million joint venture project with the New York State Electric and Gas Corporation to build a 200-tonne/day demonstration plant. The cost-effective process is ideally suited to cleaning up soil contaminated with tar and oil-water emulsions at old manufactured gas plants, of which there are more than 1500 in the United States.

Numerous other enterprises throughout Alberta — ranging from spreading nutrient-rich pulp sludge and ash from the Slave Lake Pulp Corporation on farmland as fertilizer to grinding recycled glass bottles and jars at Vitreous Environmental Products in Airdrie for use in the production of fibreglass, reflective road paints and sandblasting additives — are directed at enhancing the environment.

Through the Western Environmental Industry Network, Alberta cooperates with environmental industry associations, other provincial governments and the federal government to develop and expand opportunities in the environmental technology and services industry.

Implementation Directions

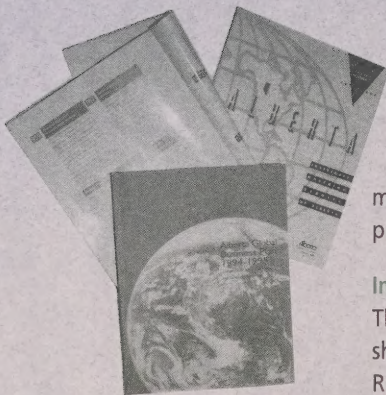
The environmental sector is a worldwide growth industry. The emergence of Alberta's environmental industry is recognized in *Seizing Opportunity*, the government's economic policy. Initiatives to expand our environmental technology and expertise should be industry-led and involve a collaborative effort by all relevant groups and agencies. Three initial focuses might usefully be:

1. improving access to venture capital;
2. facilitating the commercialization of environmental technology; and
3. developing consortia of western companies with the financial and technical resources to compete internationally.

To assist individual firms, Alberta Economic Development and Tourism has identified strategic directions and priorities for the industry in its *Alberta Global Business Plan*, which also invites participation in international trade shows and missions. As well, the department provides an investment matching service which profiles Alberta companies to a global network of investors.

Implementation Responsibility

The Environmental Services Association of Alberta, as well as individual corporations should work in cooperation with Economic Development and Tourism, the Alberta Research Council, the Alberta Environmental Centre, the Canadian Environmental Technology Advancement Corporation in Calgary, post-secondary institutions, and environmental non-government organizations.





"...Northern Telecom invested \$1 million over three years in the elimination of the ozone-depleting CFC-113. Over the same period, the project actually saved us some \$4 million."

Elizabeth Stikeman Rose
Assistant Vice president, Northern Telecom

PRIORITY FOUR

Develop innovative, cost-effective ways of doing business to support sustainable development.

"If industry is able to breach the credibility gap with ENGOs, there is a good probability that voluntary mechanisms for achieving public policy objectives and regulations will become an acceptable complement to command and control."

Delphi Survey Participant

Fiscal realities dictate that both government and industry conserve financial and environmental resources. As a result, even more cost-effective ways of doing environmental business will be essential. The current trend toward reduced spending by all levels of government is readily apparent. Over the longer term, even after Alberta's deficit is eliminated, the social and health support required for our aging population will place growing demands on public expenditures.

Corporations will continue to operate in a highly competitive global marketplace, more tightly knit by broad trade agreements, but with less direct involvement of government. Policies and objectives that spur the development of innovative technologies and processes will remain critical to protecting our environment and ensuring future prosperity. Such motivators have proven their value in various ways. Indeed, prompted by regulation, many companies have moved beyond compliance, pollution control and clean-up to the much larger business equation — prevention, in a prescribed cost-effective and efficient manner that inevitably improves performance, competitiveness and profitability.

According to the Business Council on National Issues:

Sustainable development... embraces the entire development cycle. It is concerned with the form of development itself, with product design, production processes and marketing strategies. Its measures are efficiency, competitiveness, and macro-economic and macro-environmental performance. Sustainable development seeks to ensure that environment and development are mutually supportive at the front end of the cycle when societal goals and policies are being set, not at the tail end after society and the economy have already incurred the damage costs of unsustainable development.

More attention has been given to taking total quality management to the next step by implementing full-cost accounting and cradle-to-grave assessments. Supported by approximately 50 international corporations, including Alberta-based TransAlta Corporation, the Business Council for Sustainable Development introduced the concept of "eco-efficiency" at the 1992 Earth Summit in Rio de Janeiro to improve environmental cost information and foster better decision-making. It concluded that:

When business has a known set of costs or values, identified and calculated by accounting internal environmental costs, there will be action on a broad range of activities: the use of raw and non-renewable materials; disposal practices; the use, storage and transportation of products, process designs and effluence; and even the use of land, air and water.

"It is immoral and irresponsible not to use the most cost-effective means to achieve environmental goals, given the urgent competing need to address the other important social and economic problems of our population."

National Round Table Review, Fall 1993

To facilitate such environmentally responsible management practices, the use of economic instruments is being explored by various sectors. Seen as incentives which complement rather than replace regulations, they are designed to achieve an increased level of environmental protection at the least cost to society.

However, it is imperative that such actions be implemented within a framework that recognizes and supports the crucial connection between competitive enterprises and environmental sustainability. An appropriate balance of regulations, economic instruments and voluntary participation is necessary for stakeholder buy-in. It is also incumbent on government to review its fees, taxes and subsidies to determine which are consistent with sustainable development objectives and to discontinue those which are not. The Canadian Council of Ministers of the Environment suggests that unless such incentives explicitly incorporate sustainable development principles, they may result in uncompetitive and excessively resource-consumptive industries.

Alberta government measures to reduce the deficit and reduce spending will mean less direct funding for environmental programs and less direct involvement in economic activities. While this will place greater responsibility on industry, it also presents opportunities for more private and public sector partnerships and collaboration.

Direction 18:

Move full-cost accounting from theory into practice.

To bridge the gap between what is good for business and what is good for the environment, we have to reshape accounting practices. In a sustainable development context, it is important to know the full costs — economic and environmental — of activities that consume renewable and non-renewable natural resources, and/or have the potential to pollute the environment.

Traditionally, only the financial costs directly affecting production, for example, were considered by companies and organizations. However, public concern about the environment and scrutiny of environmental practices is leading to an expansion of the cost equation. As well, environmental obligations have increased and legal liability for pollution clearly defines the potential consequences for ignoring these costs.

In fact, concern about corporate environmental liability can affect the ability to get bank financing and insurance. As well, securities commissions in the United States are now requiring detailed environmental reporting in many sectors, and the Toronto Stock Exchange is expected to follow suit. This puts pressure on businesses to do environmental auditing and reporting, and will become an increasingly important driver to get them to pay attention to sustainable development management.

As a result, many forward-looking corporations and industry organizations have developed methods of incorporating environmental costs into their criteria for decision-making. The theory is that this will lead, initially, to improved environmental behaviour and, ultimately, to the most efficient means of changing business practices which impact on the environment. Internalizing environmental costs is an essential condition for the full application of market forces.

The Canadian Council of Ministers of the Environment links resource firms' competitiveness and sustainability to paying the full environmental costs of the resources they consume and the waste they produce. The Council acknowledges that it is difficult to assign monetary values to resources, but says that both the costs of exploitation and depletion should be accounted for as part of production costs.



Despite increasing recognition of the need for and advantages of the full-cost accounting approach, the actual methodology is not well developed and clearly defined. Nor is there agreement on a single procedure and set of assumptions.

Implementation Directions

It is important that industry and government aggressively develop full-cost accounting methodology as a tool to help identify the environmental, social and economic costs of a proposed project, action or product.

The Environmental Services Association of Alberta's "Code of Practice" recommends that its members "reflect full-cost accounting in their tenders". Furthermore, the Association is involved with a number of stakeholder organizations in a project to develop a full-cost accounting mechanism for determining the "real" cost of waste management, as recommended by the Environment Council of Alberta Task Force on Economic Instruments for Waste Reduction. This is an example of the type of initiative that is needed in other industry areas.

Within an agreed upon framework, the more specific methodology for life-cycle costing — the identification of costs of a product from inception to disposal — should also be developed. For example, the Canadian Standards Association has developed guidelines for life-cycle assessments in dealing with waste management audits.

Implementation Responsibility

Industry associations and professional accounting organizations should work in partnership with Alberta Treasury, and Environmental Protection.

Direction 19:

Actively pursue objectives-based alternatives to prescriptive environmental regulation.

The government's role is to set environmental standards and objectives, and to ensure that they are met. Given the variety of sustainable development objectives and circumstances, an array of different approaches is needed to produce the most efficient and cost-effective results. Prescriptive regulation sets not only the objective but also how it must be met. While it may be necessary in some situations, it is not always the best means of achieving the intended goal.

Prescriptive regulation can inhibit the creative innovation that may be necessary to find cost-effective solutions to the competitive and environmental challenges Alberta will face in the next two decades. If the private sector is to be empowered — along with environmental non-government organizations and individual Albertans — to accept a large sustainable development role, it must have the opportunity to respond effectively. The willingness of the private sector to play a larger role is evident in a number of industry initiatives, such as the Canadian Chemical Producers' Association "Responsible Care" program for the management of chemical products. (See Appendix 7.) All member companies of the Association make a commitment to implement the 152 elements of the codes of practice for this program.

Delphi survey respondents from all sectors generally agreed that current alternatives to regulation are not satisfactory. Most felt that government involvement in environmental regulation will decrease in the coming decades, but differed significantly on how they greeted this development. Many thought that unless government maintains or strengthens monitoring and enforcement of standards with firm penalties for



"The real issue is not how you regulate, but the philosophy behind regulation and control. For example, maintain a certain environmental quality and minimize impacts to the extent possible."

Delphi Survey Participant

"Environmental progress will have to be made through the more difficult process of public education and consultation. Regulation is a simplistic solution."
Delphi Survey Participant

"A move to the use of economic instruments to control pollution should benefit Alberta's environment. Regulations are often at the whim of political expedience and not enforced. Alberta should move aggressively toward using economic instruments."
Delphi Survey Participant

"Self-monitoring and auditing is a farce."
Delphi Survey Participant

violators, environmental degradation can be expected. These respondents did not think industry could be trusted to safeguard the environment.

Other survey participants insisted that as government withdraws from involvement, industry and new mechanisms will do the job more efficiently and for less money. Some believe industry will safeguard the environment, either because new incentives or economic systems will give it reason or because it will develop a greater sense of environmental responsibility. The third group envisioned a deregulated future in which government and industry, with possible input from the public, will work cooperatively to solve environmental problems. They spoke of the continued need for discussion, debate and consultation.

With less government money available for the environment, we must use cost-effective means to achieve our objectives. In the context of increasing global competition, the cost implications of regulation for industry must also be considered. Where there are more cost-effective options available, the private sector should be given the opportunity to pursue them.

Economic instruments — fees, charges and subsidies — may have the potential to achieve results more effectively than command and control regulation in certain cases. One of the best examples is the Alberta beverage container deposit system which results in a recovery of more than 75 per cent of estimated new purchases.

The *Alberta Environmental Protection and Enhancement Act* makes provision for economic instruments, and Environmental Protection has included the review and implementation of economic instruments in its 1994 to 1997 Business Plan. The Task Force strongly supports this planned initiative.

Information on potential economic instruments is readily available. The Environment Council of Alberta's report on waste reduction, released in September 1994, recommended the application of various, practical economic instruments to achieve waste reduction objectives. User fees have been successfully implemented in various municipalities to offset the cost of waste collection and to act as an incentive to reduce the amount of waste being generated.

Audits of industrial or resource operations, performed by outside professional consultants, are increasingly being recognized as a viable option in ensuring environmental objectives are met. The Canadian Pulp and Paper Association, for example, has adopted a position in favour of independent audits of the industry's forest management and practices.

The Government of Alberta is currently conducting a broad review of its regulations in all areas. This provides an ideal opportunity to reduce excessively prescriptive environmental regulation, and move to more innovative approaches that will help us meet our sustainable development goals.

Implementation Directions

The Government of Alberta's current deregulation initiative should focus in part on eliminating or modifying those regulations that dictate how environmental objectives are to be met. The potential for shifting responsibility to those being regulated to determine the best way to meet objectives should be actively explored. The government should retain responsibility for setting the objectives and ensuring they are met. Regulated companies should be given increasing responsibility, where appropriate,

"Economically-efficient means of regulating environmental concerns have great potential to direct limited resources at important issues."

Delphi Survey Participant

"Market mechanisms provide the most practical and logical means for achieving a sustainable future..."

Delphi Survey Participant

to develop their own action plans to meet objectives. Depending on the circumstances, these could be formally registered with the government and made available to the public.

Independent audits should be considered as an alternative to government field inspections as a way of determining the results of industry-based initiatives to address objectives. In addition, the requirement for increased reporting could replace the need for certain regulations.

The provincial government, in consultation with industry and environmental groups, should also aggressively pursue the application of economic instruments to achieve sustainable development objectives.

Implementation Responsibility

Environmental Protection should work in consultation with industry, environmental non-government organizations and other stakeholders to determine appropriate alternatives to a command-and-control approach to regulation.

Direction 20:

Review provincial fees, taxes, and subsidies to determine their effect on sustainable development progress.

Existing fees, taxes and subsidies are all economic instruments. These were instituted for a variety of reasons and, in some cases, may work against sustainable development. The fees, taxes or subsidies that are not consistent with sustainable development should be identified so that removal or alteration can be considered.

In November 1994, a federal task force report, *Environmental Instruments and Disincentives to Sound Environmental Practices*, was released for public discussion prior to the 1995 budget. The report recommended new economic instruments, and commented on those already in place. This is one example of the growing recognition that we need to assess the environmental implications of our tax structure and economic incentives, including sustainable development analysis of provisions in the provincial budget.

Implementation Directions

Through a coordinated government approach, individual departments should systematically review fees, taxes or subsidies within their purview with potential implications for sustainable development, identify those which have an adverse impact and report the findings to the Sustainable Development Coordinating Council.

Implementation Responsibility

The Sustainable Development Coordinating Council, in consultation with Alberta Treasury, should recommend changes based on the results of the departmental reviews.

PRIORITY FIVE

Ensure greater environmental empowerment and accountability for all sectors of Alberta society.

"Albertans have a tradition of public participation in decision-making and working together to solve common problems. Will we continue to work together to meet environmental challenges and grasp opportunities to be a leader in sustainable development? Or will growing economic and social pressures cause conflicts and divisiveness to prevail?"

Delphi Survey Participant

Albertans are in the midst of sweeping changes — changes which are reshaping both social policy and free enterprise initiatives.

These changes are being driven, in large part, by the Government of Alberta's new approach to governing as set out in *A Better Way — A Plan for Securing Alberta's Future*, its 1994 to 1997 business plan. The strategy involves balancing the budget, reducing expenditures, and delivering services with less direct government involvement. Internal restructuring has been based on assessing what government is doing... how much it is doing... and why. Government, like other sectors, has been making tough decisions about how much will be spent and on what. New approaches have been taken on who decides and who benefits.

Within the context of setting priorities which will effectively provide directions toward sustainable development, the Task Force made its decisions based on some key realities:

- the new role of government;
- the need for cost-effective means of achieving environmental goals;
- the need for partnerships between the public and private sectors to maintain and improve environmental practices and technologies;
- increasing recognition of individual environmental responsibilities;
- changing legislation which will result in the devolution of responsibility to local governments; and
- greater emphasis on community-level decisions within a policy framework established at the provincial level.

With these changes, the private sector and individual Albertans clearly must assume greater responsibility in both the environment and the economy.

Empowerment of the private sector, municipalities and individuals is desirable in the context of the changing role of our society in decision-making. Through significant restructuring during the past two years, the provincial government has distanced itself from direct involvement in a number of areas. More and more priorities are being set and decisions are being made at the community level. This must be done within the context of provincial policies, standards and guidelines. The emphasis is on individual responsibility — in corporate, local and personal settings.

"In regard to the question: 'What else can be done to address this issue?', the answer ...might well begin with acknowledgement of the need for leadership by the provincial government in the development of a strategy for sustainability for Alberta; the translation of that strategy into priorities, action plans and a process to achieve buy-in by all segments of Alberta society."

Delphi Survey Participant

"As long as those expressing concern for sustainability are labelled 'radical' or 'negative' by industry and government, we will not be able to progress."
Delphi Survey Participant

With such empowerment comes a new level of accountability that is critical to ensuring that results are achieved and that fiscal and human resources are used to good effect.

These changes enable businesses and individuals to use their creativity to determine the most cost-effective means of implementing sustainable development. Public awareness of the corporate and government progress toward this objective could effectively empower and encourage individual Albertans to make contributions to the broader effort.

This priority direction responds to the public adoption of sustainable development as a fundamental value. It proposes a mechanism for coordinating and promoting progress toward its achievement, for reporting on that progress, and for improving information systems. And, lastly, the Task Force calls for empowering individuals to reinforce their roles in *ensuring prosperity* for future generations.

Direction 21:

Develop a mechanism to coordinate and promote the implementation of sustainable development.

The Standing Policy Committee on Natural Resources and Sustainable Development and the Sustainable Development Coordinating Council are pivotal to ensuring progress toward sustainable development at the provincial government level. Furthermore, in leading by example, the Alberta government would influence other segments of society. Achievement of the goal will require the involvement of and commitment to the concept by the private sector, environmental non-government organizations — ENGOs — and individual Albertans.

"There needs to be a discussion of the process by which multi-stakeholder groups, many members of which are not elected, are held accountable for decisions that they may take."
Delphi Survey Participant

A mechanism is required to coordinate and promote implementation, and report on the efforts of all sectors of society, including government. Without such coordination, the efforts of individual parties will continue in isolation and may not be as effective.

Various levels of activity are underway that support the transition toward sustainability — not just nationally and internationally, but within Alberta as well. For example, numerous corporations and organizations have implemented sustainable development strategies which, if shared, could provide ideas and incentives for others to follow.

The Conference Board of Canada has identified three stages in the evolution of corporate environmental management:

- ad hoc management;
- managing for compliance; and
- managing for sustainable development.

"The first [sustainable development] plan served as the essential baseline against which the corporation can plan, execute, measure and report its progress in contributing over the years to a more sustainable global future."
Jack MacLeod, former CEO,
Shell Canada

A number of companies, many of them in the petroleum industry sector, would concur that they were in the first stage until the late 1960s; stayed in the second during the 1970s and through the 1980s when environmental management practices were developed; and entered the third in the 1990s. Shell Canada, for example, created its sustainable development policy, plan and reports because concern for corporate stewardship transcended regulatory compliance.

A CHANGE IN APPROACH

Environmental Management for Compliance ➡ Management for Sustainable Development

Environmental Impact Assessments	➡	• Integrate environmental and economic decision-making
Meet regulatory requirements for air, water and waste systems	➡	• Make detailed inventories for waste air and water system emissions • Design and operate to minimize reclamation • Monitor and audit with follow-up
Defer site reclamation plans to future	➡	• Design and operate to minimize reclamation PLUS: • Practices based on principles • Project life cycle management • Project life cycle assessment • Energy conservation and efficiency improvement • Emphasis on anticipation and prevention • Proactive consultation with stakeholders

Source: Shell Canada, National Round Table Review, Fall 1993

"Who would argue against growth in employment, efficiency, ecological stability, social resilience or security? This is what sustainable development is all about — and it can only be achieved by ensuring that the market, institutional and political forces still engaged in the old kind of growth use their considerable talent to build bridges to sustainability."

Projet de société,
Planning for a Sustainable Future

The Task Force believes that there will be increasing acceptance of sustainability as a starting point for consensus-building. As pressure on Alberta resources increases and strictly economic objectives come into conflict with strictly environmental objectives, the need for a common goal will become more urgent. The sustainable development concept provides that common perspective which could enable competing interests to resolve disputes in a way that furthers both a sound economy and a healthy environment. The participation of key stakeholder organizations — economic and environmental — is needed to develop the mechanism for coordinating the implementation of sustainable development.

Implementation Directions

The mechanism for coordinating and promoting sustainable development strategies would have to be developed with input from key stakeholders to ensure its credibility. Possible models for this mechanism include:

- the Clean Air Strategic Alliance;
- the Alberta Forest Conservation Strategy steering committee, working groups and stakeholder consultation process;
- the former Alberta Round Table on Environment and Economy;
- the Eastern Slopes Environment and Energy Committee; and
- the federal expansion of the role of the Auditor General's Office to contribute to sustainable development progress and report on results.

The newly-created Alberta Economic Development Authority should support the principles of sustainable development in its recommendations, and encourage the establishment of the coordinating mechanism. Its support would be particularly useful in motivating government, the private sector and local economic development authorities, Chambers of Commerce and Boards of Trade to participate.

Implementation Responsibility

Within government, Executive Council should direct that the Standing Policy Committee on Natural Resources and Sustainable Development, together with the Sustainable Development Coordinating Council, facilitate the development of an appropriate coordinating mechanism.

The environmental community should be approached, through forums like the annual

"The state of sustainable development monitoring and reporting is critical to Canada, not only in terms of our competitiveness, but also the quality of our environment. At issue are such topics as international standards for state-of-the-environment reporting, the partnership agenda between business and government, the fundamentals of private sector cost-benefit analysis and economic decision-making, and the welfare of workers, communities and regions."

Corporate Sustainable Development
Reporting in Canada

prepared for the National Round Table on
Environment and Economy

meeting of the Alberta Environmental Network, to participate in the development of the coordination mechanism. Industry associations should also become involved.

Direction 22:

Promote public and private sector reporting on sustainable development progress.

Public reporting will be essential to allow all sectors of Alberta society to gauge progress and to hold key stakeholders accountable for their activities. This accountability could, over time, prove to be a major motivator. Reporting expectations will also spur the development, adoption and standardization of sustainable development indicators. Integrating financial, environmental and social goals and obligations optimizes efforts toward sustainability.

Many industries have demonstrated initiative and public accountability through sector codes of practice, including *Forest Care* developed by the Alberta Forest Products Association, and *Responsible Care* adopted by the Canadian Chemical Producers' Association. Many corporations have adopted sustainable development objectives and strategies because they are accountable to their shareholders and customers, and believe this meets the growing demands by both for environmental sustainability.

Implementation Directions

A pragmatic approach should be taken to implementing this recommendation, building on existing mechanisms such as the business planning process in government and annual corporate environmental reporting. Sustainable development reporting is not intended to be onerous, and would draw a great deal on data already being collected.

Provincial government departments which have not already done so should identify sustainable development objectives and report on progress through the annual departmental business plans. As well, the provincial budget address should include progress toward sustainable development to supplement comments on Alberta's economic progress. In addition to highlighting sustainability as having fiscal implications, this would also send a useful signal to other stakeholders and to trading partners about its importance as a government objective.

Municipal governments should be encouraged to report on their progress toward sustainable development.

Corporations and major economic sectors should be encouraged to report on their progress in reaching sustainable development objectives. In a number of cases, the private sector is leading the way in sustainable development reporting. Companies like Shell Canada and TransAlta Corporation already issue these kinds of reports.

Industry sectors should consider standardization of reporting subjects and measures to facilitate comparison of performance among organizations with a similar role. The Winnipeg-based International Institute for Sustainable Development is working with industry in this area.

Reporting information on provincial progress could be communicated to the general public much like the "State of the Environment Report". It could be issued jointly by the Ministers of Alberta Environmental Protection and Alberta Economic Development and Tourism; or by the Chairman of the Standing Policy Committee on Natural

"As businesses deal with their stakeholders and as both stakeholders and businesses work out the kind of information that is useful in measuring how a company is progressing toward meeting [sustainability objectives], corporate reporting will evolve."

International Institute for
Sustainable Development



Resources and Sustainable Development. If a separate report is not issued, the information gathered should be contained in the State of Environment report. Data compiled in the natural resources accounting process should be included in this formal report.

Implementation Responsibility

Environmental Protection in cooperation with Alberta Treasury, Economic Development and Tourism, major industry associations, the Alberta Association of Municipal Districts and Counties, the Alberta Urban Municipalities Association, and environmental non-government organizations should encourage and develop the system for multi-stakeholder reporting.

Direction 23:

Improve access to usable environmental information.

There is a genuine need for better — not more — information. Delphi survey participants were almost unanimous in their view that the problem is not so much a shortage of information, in terms of quantity, but rather a shortage of quality information. Some felt it should become more sophisticated, balanced and scientifically accurate, with industry sharing more user-friendly data on the impact of its activities. It was suggested that environmental decision-making should be based more on scientific information and less on political considerations or pressure to respond to “issues of the week”.

Better, more accessible information is important not only to improve decision-making but also to empower the private sector, environmental non-government organizations and individual Albertans whose role in achieving sustainable development is critical.

Coinciding with this need is an opportunity to take greater advantage of the computer and telecommunications revolution. Computer software and new technology can transform data into useful information that is more widely accessible and user-friendly through the “information highway”.

Large amounts of data important to sustainable development are already collected. Extensive databases track economic output and employment statistics. Environmental measurements are recorded for a multitude of purposes by hundreds of industry, government and academic monitoring stations throughout the province. The key, in supporting sustainable development decision-making, is to produce useful information from this data.

Implementation Directions

In an era of increasing global competitiveness, we must ensure that all reporting requirements are necessary and useful, both in terms of content of reporting data and the form in which information is provided.

Increased computer capabilities, new software and network systems are already being used to good effect to transform data into useful information. For example, the Strathcona Industrial Association, comprised of area refiners, has recently contracted for this type of application of computer solutions to its emission monitoring data.

Alberta Environmental Protection should undertake a pilot project to turn environmental data, through computer options, into useful environmental information. As part of this project, the need for the specific types of information currently required should be reviewed to ensure their continued relevance.

“There is a lack of full information on the part of the public. Their actions are driven by fear and conjecture, often leading to improper and destructive prescriptions for environmental enhancement.”

Delphi Survey Participant

“We need to be more strategic about the data we collect and faster in analyzing and reporting.”

Delphi Survey Participant

Key environmental information should be made more accessible to the public through computer networking systems. Data compiled through the natural resource accounting system should be made available.

Implementation Responsibility

Environmental Protection should work in cooperation with the Alberta Research Council, industry associations, relevant environmental non-government organizations, and computer networking specialists.

Direction 24:

Empower Albertans through measures that facilitate individual environmental responsibility.

"Establish an educational trust staffed with young Albertans who are knowledgeable, enthusiastic and concerned about sustainable development... [to] stage educational and technology transfer events around the province using an army of summer students. Industry would co-sponsor and provide specific expertise and the media would be encouraged to attend."

Delphi Survey Participant

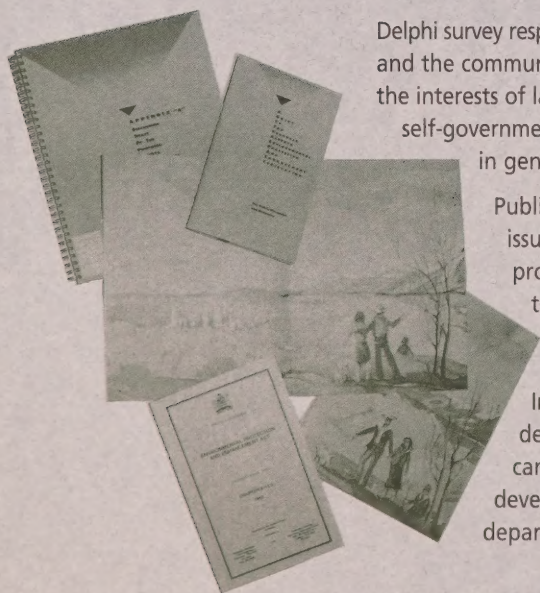
The cumulative effect of the actions of individual Albertans is undoubtedly the single biggest influence on our prospects for making sustainable development a reality in this province. Promoting its fundamental value and an understanding of what is required for implementation will have little effect unless Albertans accept that their individual actions are significant to the larger picture.

Delphi survey respondents pointed to the effects of public concern, the implications of which were increased personal responsibility and informed decision-making that is less political and more in touch with reality. Many foresee a greater understanding of the impact of individual attitudes, consumption patterns, choices and activities. They also believe that public demand for a greater voice in environmental matters will soon be an important driver in the political arena.

While many Albertans are willing to go to considerable lengths to ensure we have both a strong economy and a healthy environment, many others are not willing to put that degree of effort to achieving that goal. To empower Albertans, we must inform them of the common sense, practical ways they can contribute to a strong economy and healthy environment in their daily lives, and of the avenues open to them for greater involvement in decision-making. We must make it easier for them to contribute to a sustainable future, and we must support their efforts.

Delphi survey respondents expressed concern that the interests of employees, consumers and the communities in which industrial projects are situated were outweighed by the interests of large corporations. They also felt that, as Aboriginal people move to self-government, they will become more vocal about environmental degradation in general, and the effects of industry on their lands in particular.

Public input is essential to an empowered society. The process brings issues to the forefront, gauges public reaction to various options, and promotes greater understanding of the decision that is ultimately taken. The *Alberta Environmental Protection and Enhancement Act* contains the legislative framework for citizens to provide advice on environmental issues. Consistent with the *Act*, the Public Involvement Guidelines for Alberta Environmental Protection outline detailed procedures for public involvement. (See Appendix 6.) These can serve as a good model for broader public input on sustainable development which goes beyond Environmental Protection or any one department.



The Alberta Environmental Network has recently produced a public consultation handbook, designed to assist those initiating consultations or participating in them. The principles in this handbook are another useful point of reference.

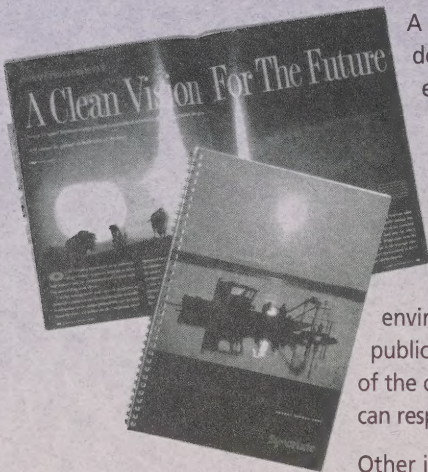
Implementation Directions

All levels of government, corporations and other sectors of Alberta society should actively identify and implement appropriate ways to empower Albertans to contribute to our common sustainable future.

"Since public policy is guided by citizens, their concern is critical. Additionally, the role of the individual consumer to influence the market is a power to be used."
Delphi Survey Participant

Sustainability through individual decisions involves increased awareness of actions which create stress on the environment, including such things as product selection, waste disposal and energy use. For example, better purchasing choices could be facilitated through improved product and packaging labels. Industry Canada should expand labelling requirements to include more detailed information on the portion of biodegradable or recycled material in packaging. This allows consumers to judge the environmental commitment level of the manufacturer, assists in determining the best method of disposal, and influences the decision to purchase.

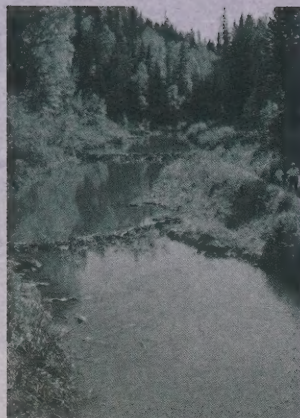
Through the application of economic instruments, Albertans become more conscious of the costs associated with their actions. For example, municipalities could provide support to environmentally responsible action by modifying rate structures to reward efficient water or electricity use, and applying user-fees for waste collection to encourage reduction, reuse and recycling.



A number of cross-sector opportunities exist for citizen involvement in determining actions to mitigate environmental impacts in regions where the economy is dominated by resource-based industries. For example, the Regional Air Quality Coordinating Committee deals with the issues of odours and sulphur dioxide emissions from the oil sands operations. Residents of both Fort McMurray and Fort MacKay, working with representatives of Syncrude, Suncor and governments, have developed an "Odour Protocol" which includes quick response and action when community members report problems. As well, through Responsible Care, the chemical producers environmental code, Dow Chemical Canada Inc. in Fort Saskatchewan conducts public tours, educational programs and citizen forums to ensure citizens are aware of the company's environmental commitment and to listen to people's concerns so it can respond in a meaningful way.

Other industry initiatives include community level involvement in Weldwood of Canada's forestry operations in Hinton. In February 1990, a public advisory group was established to assist Weldwood in formulating decisions on forest management plans, biodiversity, ground rules and operating plans. The interests of the town and surrounding area are well represented through 16 different groups which meet with the company about 10 times a year. Participants include the medical profession, municipal officials, Chamber of Commerce, Canadian Association of Petroleum Producers, Metis Association of Alberta, Alberta Trappers' Association, Federation of Alberta Naturalists, Alberta Fish and Game Association and others.

With the computer and telecommunications revolution, there will be new opportunities for Albertans to reflect sustainable development values in their life and work. The "virtual office" could over time change commuting patterns and road needs. In recognition of this trend, municipalities could introduce more flexible zoning to



"Many Albertans are willing to go to great lengths to protect the environment. What we have to do is make it easy for the average Albertan to be environmentally-responsible and involved."

Judy Huntley, Task Force Member

support environmentally responsible urban design. For example, to lessen and discourage the reliance on automobile use, the City of Calgary is exploring various options which could result in regionalized business communities and less downtown parking.

Steps could be taken to make private conservancy more attractive to Albertans. The need for a legislative framework for conservation easements has been mentioned, and tax incentives could also be considered. For example, the City of Edmonton has just introduced a policy on voluntary conservation by private landowners of environmentally sensitive areas — "Conservation of Natural Sites in Edmonton's Table Lands". Based on study of Edmonton's 88,217 acres/35,700 hectares of table lands which were annexed by the City in 1982, an inventory of three categories of potential sites was developed:

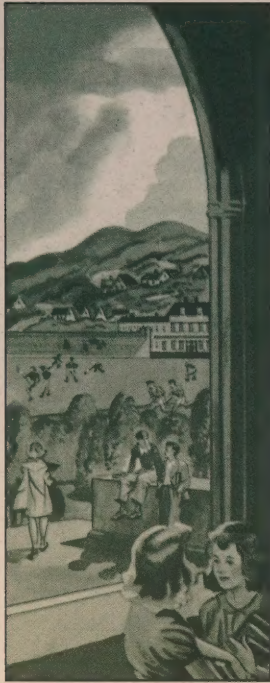
- *environmentally sensitive lands*
38 sites totalling 1,614 acres/653 hectares of undisturbed or relatively undisturbed land with value to society and ecosystems worth protecting, but susceptible to disturbance;
- *significant natural areas*
27 sites totalling 704 acres/285 hectares within the urban environment that are significant from an environmental perspective because of size or features; and
- *natural areas*
246 sites totalling 850 acres/344 hectares containing vegetation, water or natural features.

The proposed policy stresses voluntary participation by landowners, and features a "tool kit" of incentives to encourage participation.

To create optimum opportunities for public input, the Environmental Protection "Public Involvement Guidelines" could be applied more broadly within the Alberta Government to include appropriate decisions with potentially significant sustainable development implications related to any department. The guidelines could also usefully be adopted by local governments or industry.

Implementation Responsibility

The Sustainable Development Coordinating Council and relevant government departments should work in cooperation with appropriate organizations, including the Alberta Urban Municipalities Association, the Alberta Association of Municipal Districts and Counties, individual municipalities, relevant professional organizations such as the Canadian Institute of Planners, Industry Canada, and environmental non-government organizations.



SECTION 4

"But people must be persuaded that the economic-environment connection can lead to something better — they will not demand what they do not know is possible."

U.S. Environmental Protection Agency

Moving into the Next Millenium

"Vision without action, however, is insufficient."

Alberta Round Table on Environment and Economy

E*nsuring Prosperity — Implementing Sustainable Development* is a report about taking actions today which will change many tomorrows. It is a report about new values and new directions. It is a report about better ways to protect our resources, to enhance our global reputation, and to do business. *Ensuring Prosperity* is a report about Albertans — our responsibility and our power to effect change.

Implementing sustainable development is a tall order. Despite pockets of progress, we have a long way to go in achieving what should be considered the ideal. The Alberta Vision of Sustainable Development statement and its elements, highlighted on page 35, describe that ideal.

It was not the intention of the Future Environmental Directions for Alberta Task Force to re-invent the wheel. Rather, it was to get it on track and rolling. Using the earlier work of the Alberta Round Table on Environment and Economy, the members of the Task Force began drafting a blueprint for achieving sustainable development. They built on many of the initiatives that are already underway but, all too often, are isolated one from the other. They concluded that maintaining the status quo — however good we think it is — is no longer enough. Albertans must continually strive for excellence by improving what we already do well. We must examine our personal behaviour patterns and consumption levels, and recognize that as individuals we have a responsibility to protect and enhance the environment. We must accept our central role in the intricate web of dependent relationships within the ecosystem. We must recognize that Alberta's strength and success will come from the cohesive efforts of all segments of society. Sustainability is, after all, a shared responsibility.

The Task Force members are convinced that, more and more, Alberta's future will be shaped by outside forces — by its trading partners and the global marketplace. Environmental concerns, locally and globally, are a reality that must be taken seriously by government and industry. The multiple links between trade and the environment are not a fleeting fad — they are pervasive and permanent. Clearly, in looking at the possibilities the future might hold for Albertans, the Task Force is convinced we must implement sustainable development to retain existing trade partners, attract new customers, and avoid potential conflict — between those who are for and against development and among competing resource users.

Having reviewed much information on emerging trends and consulted with hundreds of Albertans, the Task Force concluded that we are vulnerable in certain areas. If we continue to accelerate the exploitation of our renewable and non-renewable resources without due regard to sustainability, we place our future prosperity at risk — both economically and environmentally. While progress is being made, a more concerted effort is required to manage sustainably the economic sectors that impact on our air, water and land.

The Task Force found that the greatest concern on the minds of Albertans today — and one which will continue into the future — is the use of our land. Conflict and uncertainty over land-use policy are exacerbating the division among a variety of users, and must be resolved if Alberta is to prosper.

While the members of the Task Force agree that new technology will play a major role in Alberta's future, the projected outcomes were not always clear. Certainly, advancements in information management and transfer have the potential to significantly change the workplace, urban development, traffic patterns and, consequently, air pollution levels. Improving air quality, particularly in urban centres, should be a priority. The Task Force believes that the concern expressed by Albertans about the environment and the implications for their personal health will continue. We must consciously choose prevention and protection rather than risk doing harm.

The Task Force on Future Environmental Directions for Alberta has identified five priorities that focus on environmental, economic and strategic directions for Alberta and Albertans — five priorities that will take us closer to the ideal.



- One *Make sustainable development a fundamental value in the way we govern and conduct our everyday lives.*
- Two *Implement sustainable resource management practices to protect our air, water and land.*
- Three *Maintain the "Alberta Advantage" and ensure our success as a trading province through sound environmental management.*
- Four *Develop innovative, cost-effective ways of doing business to support sustainable development.*
- Five *Ensure greater environmental empowerment and accountability for all sectors of Alberta society.*

This report gives credit where credit is due: to governments... to industry sectors... to environmental groups... to organizations... and to individuals. It also points out where we fall short, and how our energies can be re-directed to make a significant difference.

The elements of the Alberta Sustainable Development Vision must be the benchmarks against which we measure our progress toward sustainable development. When we are confident that — as politicians, bureaucrats, entrepreneurs, environmentalists, teachers and citizens-at-large — we have done our utmost to meet these ideals, we will have ensured a decent and prosperous future for ourselves and generations to follow in the new millennium.

Leadership — driven by the political will to change — is critical to successfully and expeditiously implementing the agenda that has been articulated by the Task Force. As pressures on our natural resources continue to grow, so too will the need to manage those resources more responsibly, more sustainably. It is imperative that all policy-makers take a longer-term view. Our continued success will depend on our ability to grasp the urgency of the situation, and to translate the Task Force priorities into improved performance.

At best, we face a five-year window of opportunity in the area of sustainable development. If we seize this opportunity, the pioneering efforts of today's champions of sustainable development will become commonplace practice for all during the next 20 years. Then, and only then, will we have fulfilled the needs and aspirations of this and future generations of Albertans by *ensuring prosperity*.

We have the choice: we can lead, or we can be left behind.

*"Regret for the things we did
can be tempered with time;
it is regret for the things
we did not do that is
inconsolable."*

Sydney J. Harris



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APPENDIX 1 Members of the Task Force on Future Environmental Directions for Alberta

David Anderson

Mr. Anderson is the Acting Chief Executive Officer of the Environment Council of Alberta. He joined Alberta Environment in 1974, where he was responsible for social impact assessments, community affairs and review procedures for major projects. Seconded to the Government of the United Kingdom in 1980, Mr. Anderson participated in the European Economic Community's working group on environmental policy. He subsequently worked with Alberta Federal and Inter-governmental Affairs with responsibility for constitutional/jurisdictional resource policy issues, and with the federal Department of Western Economic Diversification as Director of Policy and Planning.

Peter Crerar

Mr. Crerar is the Assistant Deputy Minister, Corporate and Policy Development, Alberta Economic Development and Tourism. He previously served as Assistant Deputy Minister for the Corporate Development Division of Alberta Tourism and for the Administration Division for Alberta Tourism and Small Business. Before starting his career with the Alberta government in 1973, Mr. Crerar worked at the firm of Winspear, Higgins, Stevenson and Company as a chartered accountant in 1971. He graduated with a Bachelor of Commerce degree from the University of Alberta.

Robert Elliott

Dr. Elliott is a retired agriculture research scientist. As a Member of the Alberta Legislative Assembly from 1982 to 1992, he was Chairman of the Forestry Caucus Committee and served on the committee on Agriculture and Forestry and the Northern Alberta Development Council. Dr. Elliott was Mayor of Beaverlodge from 1971 to 1978, and a member and

chairman of the Grande Prairie Regional College Board of Governors. He is a member of the Alberta Institute of Agrologists, and the Canadian Society of Agronomy. Dr. Elliott was named an Honorary Life Member of both the Canadian Seed Growers Association and the Alberta Seed Growers Association.

George Flynn

Mr. Flynn is the Director of Environmental Health Services for the Public Health Division of Alberta Health. He is Chairman of the Federal-Provincial Advisory Committee on Environmental and Occupational Health, and a member of the Northern River Basins Study Board. He is currently involved in a number of studies and initiatives aimed at assessing and understanding the human health implications of environmental conditions. Before joining Alberta Health in 1978, Mr. Flynn was on the management staff of the University of Alberta Hospital.

Ron Hicks

Mr. Hicks is Assistant Deputy Minister, Corporate Management, Alberta Environmental Protection. His responsibilities include the department's research program, strategic and business planning, natural resource planning, intergovernmental relations, policy and legislative development, and regional coordination. His previous responsibilities included preparation of the new *Alberta Environmental Protection and Enhancement Act*. Before joining the department in 1980, Mr. Hicks worked for the Ontario government and in the private sector.

Judy Huntley

Ms. Huntley is an environmental researcher and consultant. She is a founding member of the Bert Riggall Environmental Foundation in Pincher Creek, and is involved with many envi-

ronmental organizations. She was Co-Chairman of the Alberta Environmental Network for three years, and is currently on the steering committee of both the Alberta and Canadian Environmental Networks. She is a member of the working group on economic and global trends of the International Caucus of the Canadian Environmental Network. Ms. Huntley was a member of the Advisory Committee on Alberta's Economic Future which was formed to draft a provincial strategy based on the results of the *Towards 2000 Together* process.

Elmer Kure

Mr. Kure lives on a farm near Innisfail and is involved in many environmental activities. He has been active with the Alberta Fish and Game Association for many years, holding executive positions as President (1958-1960), and as a Director of Environmental Public Relations (1973-1986). Mr. Kure has served on numerous provincial government advisory committees related to environmental issues, including studies on the environmental impact assessment system, forest grazing land, and game ranching. He also served on the previous public advisory committees to the Environment Council of Alberta. Mr. Kure received an Emerald Award in 1993.

Don Laishley

Mr. Laishley is the Director of Forest Strategy for Weldwood of Canada in Vancouver. He was Forest Resource Manager for Weldwood in Hinton from 1986 to 1994, serving as Director of the Alberta Forest Products Association from 1988 to 1994. He was a member of the Environmental Protection, Forests, Parks and Wildlife Advisory Committee to the Minister of Alberta Environmental Protection from 1990 to 1994; and a member of the Forest Round Table of the National Round Table on the

Environment and the Economy. He is currently the Chair of the Woodlands section, Canadian Pulp and Paper Association.

Werner Messerschmidt

Mr. Messerschmidt was born in Hanover, Germany, and is currently a councillor for the Municipal District of Woodlands. He was an owner/manager of a book import business for 15 years, and was involved in beekeeping for 20 years. He has been actively involved with public service, participating on several committees and boards. He was involved for 15 years on the Family and Community Support Services Board, 14 years on the Improvement District Advisory Council, and nine years on the Court of Revision. Mr. Messerschmidt's interests include nature observation and conservation.

Clarence Olthuis

Mr. Olthuis is a poultry and grain farmer in Neerlandia, who is very involved in environmental issues. He is secretary of the local United Grain Growers Board of Directors, a Unifarm board member and Environmental Co-ordinator, a delegate to United Farmers, and a Lilydale board member.

Bob Page

Dr. Page is the Dean of the Faculty of Environmental Design and Professor of Environmental Science at the University of Calgary. He is a member of the National Round Table on the Environment and the Economy and its Task Force on Trade and Sustainability. He is the former Chairman of the Canadian Environmental Advisory Council. Dr. Page has worked with the federal government on environmental legislation, assessment and review processes, environmental economic linkages in decision-making, and the environmental implications of the

North American Free Trade Agreement. He is currently serving as chair of the Banff Bow Valley Task Force on the Future of the Mountain Parks.

David Stuart

Mr. Stuart is Manager of Environmental Programs, Corporate Environmental Health and Safety for Petro-Canada in Calgary. His primary responsibility is in the area of cross-divisional issues including environment, health and safety auditing, air issues, soil and groundwater, and communications. He has worked for Petro-Canada for four years in the environmental area in conventional oil and gas, oil sands, offshore development, and on international projects. Prior to joining Petro-Canada, he worked for the governments of Nova Scotia, Ontario, and Alberta.

Diane Thompson

Ms. Thompson is Manager of Geo-Information Services, Image Mapping Services Division, Intera Information Technologies Corporation in Calgary. She has been involved in land use/land cover, natural resources and terrain analysis projects using remote sensing and geographic information systems, in Canada and internationally. Ms. Thompson is a past chairman of the Canadian Remote Sensing Society, and has served on national and international committees on remote sensing issues.

Donna Tingley

Ms. Tingley, a lawyer, is the Executive Director of the Environmental Law Centre, a non-profit society providing environmental law information, education and research services. She has written and lectured on such topics as environmental assessment law, the law applicable to endangered plants, and constitutional law. Ms. Tingley has been a member of a number of advisory committees,

including the Contaminated Sites Implementation Advisory Committee, the Alberta Round Table on Environment and Economy, and the Review Panel on Environmental Law Enforcement.

Millard Wright

Mr. Wright is the Manager of the Corporate Safety and Environment Group at Gulf Canada Resources Limited in Calgary. Trained as a wildlife biologist, he worked in the area of wildlife management for eight years before joining Gulf in 1976. Mr. Wright has been active in the Canadian Association of Petroleum Producers, representing the Association on the Minister of Environmental Protection's Advisory Committee, and the Task Force on Contaminated Sites.

APPENDIX 2 Contributors to the Project

One of the most exciting features of this project was the variety of ways that hundreds of interested Albertans and others contributed their insights. This was not limited to one scheduled period for consultations. Input was received from the very beginning, when the project was being designed, through to consultations on the final recommendations of the Task Force. Heartfelt thanks go to every one of the many people that contributed their ideas, time and effort to the project.

PROJECT TEAM

Throughout the project, the Task Force received solid support from a team of dedicated staff. Under the capable direction of Bill Calder, this team researched and prepared material for the Task Force, organized meetings and workshops, and conducted the substantial day-to-day work between Task Force meetings.

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INTERDEPARTMENTAL COMMITTEE

The Task Force recognized the important role provincial government departments will play in implementing its priorities. To maintain effective communication, an interdepartmental committee was established early in the project. It provided a means of keeping departments informed about the project, and served as a mechanism for government input to the Task Force throughout the process.

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The Task Force and Project Team were faced with an imposing task of conducting research and consultation to effectively achieve the objective of forward-looking, well-researched recommendations, supported by input from a wide range of experts and affected stakeholders. When necessary, outside experts handled specific tasks. Several consultants contributed important advice, information and process skills at various stages of the project.

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PROJECT DESIGN CONSULTATIONS

During the first phase of this project, many knowledgeable people were consulted about the design of the project. Informal contacts and formal meetings produced many worthwhile suggestions. A number of individuals were asked for their personal ideas and suggestions, not the official positions of their organizations. The concept of this project was also presented at the 1993 annual meeting of the Alberta Environmental Network, where useful suggestions were offered by members.

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APPENDIX 3 Identification of Trends and Future Issues

TRENDS WORKSHOP

On November 1, 1993, a workshop was held to identify important trends that will affect Alberta's future environment. A small group of knowledgeable people from government, industry, academia and environmental organizations brainstormed and discussed trends anticipated for the next two decades. The Task Force used the 27 trends identified in this workshop as a starting point for their identification of future issues and opportunities.

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ISSUE EXPERTS

Early in the project, the Task Force identified an initial list of future issues and opportunities. In order to better assess their importance, experts were contacted to write descriptions of the issues or opportunities and assessments of their current status. These descriptions were later used in the Delphi survey to establish a common understanding of the issues/opportunities under discussion.

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ACTIONS WORKSHOP

On February 8, 1994, a workshop was held to identify actions that could be taken to address each of the issues and opportunities identified by the Task Force earlier in the project. This provided important input to the Task Force prior to the formulation of the two-stage Delphi survey questions.

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APPENDIX 4 Delphi Survey

The most ambitious and innovative method used by the Task Force to solicit input from knowledgeable people was the modified Delphi survey. This multi-staged survey method is often applied to futures-oriented research requiring expert opinion. For the Future Environmental Directions for Alberta project, the survey consisted of two questionnaires: the first distributed in March 1994, and the follow-up questionnaire in May 1994. The first questionnaire sought initial impressions of the main trends or "drivers" that will affect Alberta's environmental future. It also explored specific issues and opportunities that the Task Force had initially identified. The second questionnaire presented the results of the first questionnaire and further explored participants' views of Alberta's future environment and actions that should be taken to address anticipated issues and opportunities.

More than 1100 Albertans and people outside of the province were initially invited to participate in this innovative consultation. In the end, over 380 responded to one or both questionnaires. The Task Force very much appreciates the amount of time and effort the participants donated in filling in these questionnaires and the high quality of their responses.

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DELPHI WORKSHOP PARTICIPANTS

To build on the delphi survey, two workshops were held in June, 1994, one in Calgary and one in Edmonton. People who had already completed one or both of the written survey questionnaires were invited to participate along with Task Force members. These workshops provided an opportunity for Task Force members to meet survey participants and listen to their ideas about Alberta's sustainable development future. Survey participants interacted directly with each other and further explored the issues and opportunities in ways unavailable to them in the written questionnaires.

EDMONTON - JUNE 21, 1994

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APPENDIX 5 Consultations with Organizations

FEEDBACK ON DELPHI DISCUSSION PAPER

After Round One of the Delphi survey, a discussion paper based on the initial findings was distributed to 38 organizations. The following provided comments.

Alberta Chamber of Resources	Environment Canada
Alberta Forest Products Association	Metis Settlement General Council
Archeological Society of Alberta	Northern River Basins Study Board
Association of Professional Engineers, Geologists and Geophysicists of Alberta	Premier's Council on Science and Technology
City of Edmonton	Unifarm
	University of Alberta

FEEDBACK ON DRAFT RECOMMENDATIONS

After the completion of the Delphi survey and the June 1994 workshops, the Task Force developed and refined its specific recommendations. In order to improve the success of these recommendations, meetings and consultations were held with a number of organizations. Their input helped the Task Force develop and refine the wordings, rationales and implementation strategies of the final recommendations. The following were included in these consultations:

Alberta Association of Municipal Districts and Counties, Board of Directors	Canadian Petroleum Products Institute, National Region Management Committee
Alberta Cattle Commission, Provincial Affairs Committee	Environment Canada
Alberta Chamber of Commerce, Environment Committee	Environmental Law Association
Alberta Environment and Outdoor Education Committee	Environmental Services Association of Alberta, Board of Directors
Alberta Fish and Game Association	Future Society, Edmonton Chapter
Alberta Forest Conservation Strategy Steering Committee	Rural and Improvement Districts Association of Alberta, Executive Members
Alberta Forest Products Association, Board of Directors	Technology and Research Advisory Committee
Alberta Urban Municipalities Association, Environment Advisory Committee	TransAlta Corporation
Alberta Wilderness Association	Waste Watchers
Calgary Chamber of Commerce, Environment Committee	
Canadian Association of Petroleum Producers, Environmental Management Committee	

Thanks are also extended to the members of the Alberta Environmental Network's Steering Committee who provided their own individual comments on the draft recommendations and helped arrange meetings with interested member organizations.

Statement of Principle:

"Albertans will have every opportunity to understand and provide advice on decisions affecting our environment."

The following guidelines expand on the direction from the general principle. They will help the public and staff better understand the general principle, and to implement it consistently and appropriately.

1. All parties should work toward a consensus as the ultimate goal of public involvement.
 Consensus-building involves seeking a position that is mutually acceptable by participants.
 Participants in a consensus process should bring knowledge, experience and a willingness to achieve solutions.
 Consensus building reflects the legitimate role of all parties to participate in the process.
 Consensus is achieved through negotiation and compromise.
 Participants must acknowledge the diverse values, interests and expertise of the parties involved in the consensus process.
2. All parties should attain a clear understanding of the public involvement process.
 The public should be given the opportunity to determine how they want to be involved.
 Purpose, expectations and limitations of the process should be made clear to all parties.
 Appeal mechanisms should be explained at the beginning and clearly understood.
 The public should receive information about the decision-making processes and the opportunities for them to be involved.
3. Opportunities for public involvement should occur early in the planning process, and contact with the public is continually maintained, once it has begun.
 The public should be involved in all types of policy decisions, throughout the process, from beginning to end.
 The public should be given early and adequate notification of issues and opportunities for involvement.
4. All parties should receive equal opportunity to access and obtain information.
 Public involvement requires accurate and timely information.
 Public education on issues and information sharing are essential parts of effective public involvement.
5. Public involvement must be designed to be open, responsive and flexible to changing needs and circumstances.
 Public involvement should accommodate the public's timelines, and meet the public's needs.
 Information should be presented in a concise, non-technical manner.
 The public should be told how their input was used.
 Matters arising from the public involvement process should be resolved satisfactorily and quickly; where this resolution is not possible, an explanation should be given.
 Techniques used should be flexible and innovative.
6. Public involvement must occur in a climate of honesty, cooperation and trust.
 The outcome of public involvement is not predetermined and the process should not be used to communicate decisions already taken.
 All parties share responsibility and ownership of the process and the outcome.
 The process will promote mutual respect among the participants.
7. Public involvement has to be conducted fairly and be perceived to be fair.
 For the public to perceive fairness, all guidelines must be followed.
 The department dedicates time and effort to meet public expectations and is genuinely interested in public concerns.
 The time and effort that Albertans devote to public involvement are recognized and the resulting input used efficiently.
 The public involvement opportunities provided should accommodate Albertans who are physically unable to express their views or uncomfortable in doing so.
 Individual fairness must be balanced with collective or community fairness.

APPENDIX 7 Innovative Approaches to Sustainable Development

Throughout this report the Task Force has referred to many initiatives already underway that contribute to Alberta's progress toward a sustainable future. The Task Force wants to recognize this significant contribution and encourage similar programs and projects. Leadership is being shown, not just by government, but also by many other sectors. Below are several examples providing more detailed descriptions of some of these initiatives that support the directions recommended by the Task Force. It is not by any means a complete collection, but serves to illustrate that progress is being made.

ALBERTA REDUCED TILLAGE INITIATIVE

For many years, frequent and intensive tillage for crop production has been seen as a significant contributor to soil erosion and declining soil quality. This initiative is developing a network of partners who believe that reduced tillage will improve the economic viability of farmers and the long-term sustainability of the agriculture industry. It seeks to accelerate the reduction in the amount of tillage Alberta farmers use for annual crop production.

Founding partners include Monsanto Canada Inc., the Conservation 2000 Foundation, Alberta Conservation Tillage Society, Ducks Unlimited/Alberta Prairie CARE, Olds College, Alberta Agriculture, Food and Rural Development, and Sherritt Fertilizers. Contributing partners include the United Farmers of Alberta, Dowelanco Canada Inc., and Western Cooperative Fertilizer Inc.

Unlike some conservation initiatives, this one has very specific objectives:

1. To increase the direct seeded acreage of annual crop production in Alberta by 1.5 million acres/607,028 hectares per year for 1995, 1996, and 1997.
2. To reduce the annual summerfallow acreage in Alberta by 300,000 acres/121,406 hectares per year for 1995, 1996 and 1997.
3. To increase the adoption of reduced-tillage summerfallow in Alberta by 200,000 acres/80,937 hectares per year for 1995, 1996 and 1997.

Regional Conservation Coordinators with Alberta Agriculture, Food and Rural Development will be working with their partners to develop local programs, such as direct seeding demonstrations, tours of demonstration farms and courses on fertilizer use, weed control and other subjects related to reduced tillage.

BOREAL FOREST RESEARCH STATION

The Boreal Forest Research Station was established in 1992 to conduct research into the ecology of Alberta's boreal forest. It is located on the bank of the Peace River near Fort Vermilion, about 560 kilometres north-west of Edmonton. The main sponsor of the station is the Western Canada Wilderness Committee, an environmental non-government organization dedicated to the protection of wilderness through research and education. This initiative recognizes the importance of sound information to support the preservation of wilderness areas.

The research programs are focused on the biological diversity and ecological dynamics of old growth forest ecosystems. This includes vertebrate and invertebrate ecology, wildlife habitat relationships and traditional Aboriginal knowledge. An advisory group of scientists from the University of Alberta, Alberta Environmental Protection, Forestry Canada, the Canadian Wildlife Service, the Devonian Botanical Gardens, and the John Janzen Nature Centre provides expert advice on these research programs.

In addition to ecological research, the research station was used for an artists' retreat during the summer of 1993. Photographers, painters, sculptors, poets and musicians gathered at the station and used the inspiration of the boreal forest to create works of art. An exhibit of this art has been touring Alberta.

COMPOSTING TECHNOLOGY CENTRE

Alberta will need skilled workers in the field of waste reduction and recycling. Growth in the forest, livestock, food processing and other industries, and a growing population will continue to generate large amounts of organic waste that can be converted to useful or at least benign material through composting technology.

Olds College has a Centre of Excellence in Composting sponsored jointly by Alberta Environmental Protection and Proctor and Gamble. The College has one of western Canada's largest composting operations which offers opportunity for research and practical experience. Training of workers and managers of composting operations is being expanded to a post-graduate level to ensure advanced training is available. This new Compost Site Manager and Worker Certification program will involve on-site experience as well as "distance" training at selected industrial or municipal waste management sites. The major streams of study include:

- materials characterization, analysis, end-product use and regulations;
- system establishment, monitoring and testing; and
- public relations, total quality management and business planning.

FOREST CARE

Forest Care is an initiative developed by forestry companies in the Alberta Forest Products Association and adopted in October, 1993. Its purpose is to sustain the health of Alberta's forests while protecting their environmental, economic and social values. *Forest Care* consists of guiding principles and codes of practice that direct decision-making and set standards of performance for member companies. These codes encompass or surpass government legislation and regulations. They focus on the forest, the general environment and communities affected by company operations. More specifically, these codes relate to land use, forestry operations, communications, safety, and sustainable development.

Six guiding principles have been adopted. Member companies will:

- ensure that harvest levels do not exceed the capacity of the forest, that all harvested areas are reforested and that harvest and reforestation methods foster a healthy new forest, supporting a diversity of species;
- manage their activities on forest lands for multiple use and values;
- manage their forest and manufacturing operations in a manner that protects the environment;
- operate in a manner that protects the health and safety of employees, contractors and the general public;
- be open and responsive to community views; and
- conduct operations to ensure that the renewable forest resource provides economic activity and employment now and in the future while conserving other forest values.

The code further specifies practices related to land-use, woodlands operations, mill operations and community relations. Each member company will appoint a *Forest Care* co-ordinator, and performance will be monitored, evaluated and reported to the public. This industry-driven initiative reflects a new way of doing business: recognizing environmental, economic and social implications of their operations, clearly stating their operating principles and ensuring accountability through public scrutiny.

PARKLAND AGRICULTURE RESEARCH INITIATIVE

The Parkland region of Alberta has been heavily impacted by human settlement and agriculture. Efforts to improve conservation of wetlands and wildlife habitat will require participation and cooperation from private landowners throughout the region. The Parkland Agricultural Research Initiative (PARI) is a joint venture among Agriculture Canada, the North American Waterfowl Management Plan, Ducks Unlimited Canada, the Lakeland Agricultural Research Association, Alberta Agriculture, Food and Rural Development, local municipalities, agriculture producers and agri-business. Its purpose is to enhance technology transfer of conservation systems and develop integrated land management techniques which maintain wildlife habitat, while farming in an economically sustainable manner.

Demonstration of successful conservation and environmentally sustainable agriculture systems is an effective tool and is being employed by the Parkland Agriculture Research Initiative. A 600-acre/243-hectare demonstration farm has been established near Mundare to research and demonstrate leading-edge, innovative land management technologies on a field scale basis. It will promote environmentally sustainable agriculture practices and show that agriculture and wildlife are compatible.

The farm will be operated according to several operating principles that include preserving and enhancing intact natural wetlands and existing native Parkland vegetation on the property. A long-term objective of the farm is to become financially independent and self-sustaining with its own legal identity.

The PARI Demonstration Farm also illustrates local involvement in coordinated land management. The farm will be administered by the Lakeland Agricultural Research Association with an advisory committee that includes local producers. Several plans have already been developed to address cropping and pasture management, wildlife conservation, research and communications.

ALBERTA PRAIRIE CARE

This program provides a mechanism for society to share the costs of securing and developing wildlife habitat, and gives farmers and ranchers economically-viable alternatives. Alberta Prairie CARE — Conservation of Agriculture, Resources and the Environment — is a major component of the North American Waterfowl Management Plan, and is delivered by Ducks Unlimited Canada and Alberta Environmental Protection. Additional partners include Alberta Agriculture, Food and Rural Development, Prairie Farm Rehabilitation Administration, Canadian Wildlife Service, Ducks Unlimited Inc. (U.S.), Wildlife Habitat Canada, and other private and government organizations in Alberta and the U.S.

Alberta Prairie CARE pays rural landowners to set aside some parcels of land — preferably dotted with potholes, sloughs, ponds, marshes or other low wetlands — as natural habitat, or to change management practices so wildlife can exist in harmony with agriculture. Predetermined contracts are for a minimum of 10 years, and land-use practices may include delayed haying or grazing, planned grazing, and alternative crops. Upland waterfowl are attracted to the cover available in haylands, so normal farming activity is curtailed until after nests have hatched in mid-July.

The program boasts almost a quarter of a million acres/100,000 hectares in the province under purchase, lease or management agreement.

PRECIPICE THEATRE

Precipice Theatre is an Alberta theatre company that has been presenting performances with a unique message. The main purpose is to educate audiences about current environmental issues using an entertaining format. Their productions feature colourful costumes and sets, crazy cartoon characters, humour and song as they translate complex environmental issues into understandable and entertaining performances. Although protecting the environment is an important message of these productions, *Precipice Theatre* tries to illustrate the many conflicting interests associated with most environmental issues.

Established in 1989, this Banff-based theatre company tours the province, often presenting their message in outdoor settings such as campgrounds. Performances are free and cater to children and adults alike.

Examples of *Precipice Theatre*'s productions include:

- **Trash Pageant**
A "beauty" pageant of "trashy" characters that was crashed by a toxic villain.
- **Clown of the Continent**
A number of colourful, competing stakeholders wrestled each other to win a prize wilderness area.
- **Cowabunga**
This play about game ranching is a love story between a cow and an elk.
- **Watershed of Tears**
Performed in pools of water, this play examined the issues related to Alberta's *Water Conservation Act* review.
- **Nature Bats Last**
Built around a baseball theme, this performance illustrates the plight of neotropical migrants, songbirds that nest in Alberta's boreal forest and winter in Central and South America.

RESPONSIBLE CARE

In 1989, the Canadian Chemical Producers' Association (CCPA) initiated a program for the responsible management of chemical products throughout their entire life cycle. *Responsible Care* describes the guiding principles and codes of practice that member companies must follow. Principles and codes of practice have been developed for six specific areas: community awareness and emergency response, research and development, manufacturing, transportation, distribution, and hazardous waste management. Some of these codes include:

- There shall be an up-to-date, operational emergency assistance plan.
- All operators are fully trained in new or revised processes before start-up, including procedures to be followed in an emergency.
- Establish and implement criteria for buffer zone requirements for new or existing sites.
- Meet or exceed the letter and spirit of all legal requirements related to distribution of chemicals, chemical products, services and information.
- Require that all hazardous wastes are destroyed or otherwise treated and/or disposed of in a manner which protects people and the environment from hazards.

All member companies of the CCPA make a commitment to implement the 152 elements of these codes. *Responsible Care* includes a compliance verification process, which involves auditing and evaluation of policies, standards and procedures. This verification is done by a team which includes a non-industry representative from the local community. As testimony to the quality of this program, *Responsible Care* has been adapted by 36 countries around the world.

APPENDIX 8 Project Working Documents

A number of reports were prepared to help the Task Force formulate its recommendations. To order any of those listed below, please contact:

Alberta Environmental Protection
Information Centre
9920 – 108 Street
Edmonton, Alberta T5K 2M4
Telephone: (403) 422-2079 Fax: (403) 427-4407

WORKING DOCUMENT 1

**Environmental Public Participation in Alberta:
Some Views of Environmental Non-government
Organizations, Industry and Government**
Prepared by the Alberta Environmental Network
April 1993

WORKING DOCUMENT 2

Project Design Consultations
Prepared by the Environment Council of Alberta
July 1993

WORKING DOCUMENT 3

**The Nature of Environmental Priorities: Insights from
the Experiences of a Number of Selected Jurisdictions**
Prepared by Dr. Joel Christie
September 1993

WORKING DOCUMENT 4

**Future Environmental Directions for Alberta
Delphi Survey: Round 1 Questionnaire Results**
Prepared by Praxis Inc.
May 1994

WORKING DOCUMENT 5

**Future Environmental Directions for Alberta Delphi
Survey: Round 2 Questionnaire Results**
Prepared by Praxis Inc.
June 1994

WORKING DOCUMENT 6

**Summary of June 21 and 23, 1994
Delphi Participant Workshops**
Prepared by the Environment Council of Alberta
June 1994

WORKING DOCUMENT 7

**Social, Economic and Environmental Trends
Affecting Alberta's Sustainable Future**
Prepared by the Environment Council of Alberta
February 1995



The Environment Council of Alberta is indebted to the many people whose skill, knowledge and dedication have made this report a reality. While virtually all are listed in the appendices, some deserve special mention.

I would like to thank the Honourable Brian Evans for providing the Council with the challenge of determining Alberta's future environmental directions, and the Honourable Ty Lund for allowing us the time to complete the task.

All the members of the Task Force are to be commended for their dedication and commitment to identifying the trends that will influence our future, and developing the strategic directions that will ensure our continued prosperity. I am especially grateful to the public members — Bob Elliott, Judy Huntley, Elmer Kure, Don Laishley, Werner Messerschmidt, Clarence Olthuis, Bob Page, David Stuart, Diane Thompson, Donna Tingley and Millard Wright. Individually and collectively, they epitomize the volunteer spirit that is interwoven in the fabric of Alberta society. Particular thanks go to Don Laishley of Weldwood Canada, Bob Page of the University of Calgary, David Stuart of Petro-Canada, and Millard Wright of Gulf Canada Resources for their generosity in hosting some of the Task Force meetings.

The preparation of a report such as *Ensuring Prosperity — Implementing Sustainable Development* requires time and attention to detail. George Kupfer did an excellent job of guiding and facilitating the meetings, and keeping us all on track. Richard Roberts and his team at Praxis Inc. were diligent in their preparation and analyses of the Delphi surveys and workshops. The on-going expertise of Warren Kindzierski from Alberta Health, Takashi Ohki of Alberta Economic Development and Tourism, and Malcolm Wilson of the Alberta Environmental Centre on the project team, as well as other senior officials from various government departments, was extremely valuable.

There was a high level of involvement among Environment Council staff in the various activities associated with the Task Force. I want to thank Donna Engel, my assistant, for her loyalty, enthusiasm and support. For Project Director Bill Calder and key team members, Kathy Acheson and Brian Free, project management and participation became more than part of their respective jobs during these past two years. It became a cause and quest for more and better information and ideas to present to the members of the Task Force and, ultimately, to be reflected in the report.

The ideas, comments and words of many form the basis of any report, but the burden of production falls to only a few. Bill, Kathy and Brian were joined in their pursuit by Barb Deters who wrote this final report and supervised its design. In addition to her creative ability and sense of humour, she provided us with the benefit of her perspective on numerous issues.

Finally, I wish to acknowledge, with thanks, the hundreds of individuals and organizations who cared enough about Alberta's future to participate in the Delphi survey... to meet with us... to share their insights... to discuss concerns... to offer resolutions. This report would not have been possible without their participation.

Ensuring Prosperity — Implementing Sustainable Development is, indeed, the final report of the Environment Council of Alberta. It is a proud milestone in our 25-year history. Over the years, thousands of people have had the opportunity to serve the government and people of Alberta through the activities of the Council. Providing the priorities and directions that will lead Alberta toward a sustainable future is a fitting end to our tenure — and one which, hopefully, will compel decision-makers to action.

A handwritten signature in blue ink, appearing to read "D. Anderson".

David Anderson

A/Chief Executive Officer, Environment Council of Alberta
Chairman, Future Environmental Directions for Alberta Task Force

Ensuring Prosperity — Implementing Sustainable Development

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March 1995

